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HARBOR SEAL, *PHOCA VITULINA RICHARDSI*, CENSUS IN CALIFORNIA, MAY-JUNE 1989

By

Doyle A. Hanan

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ADMINISTRATIVE REPORT LJ-90-10

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HARBOR SEAL, *PHOCA VITULINA RICHARDSI*, CENSUS IN CALIFORNIA, MAY-JUNE 1989

by

Doyle A. Hanan
California Department of Fish and Game
c/o Southwest Fisheries Center
La Jolla, California 92038

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HARBOR SEAL, *PHOCA VITULINA RICHARDSI*, CENSUS IN CALIFORNIA, MAY-JUNE 1989

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INTRODUCTION AND METHODS

California Department of Fish and Game (CDFG) initiated a harbor seal, *Phoca vitulina richardsi*, census along the California coast in 1981. The census is part of a assessment program conducted cooperatively with NOAA/National Marine Fisheries Service Fisheries (NMFS). The census data are used as an index of abundance to detect changes in population abundance or distribution. The first census was incomplete, but allowed refinement of techniques used in subsequent censuses. Those techniques and the results of the 1982 to 1988 censuses are reported in Miller et al. (1983), and Hanan et al. (1985, 1986a, 1986b, 1987, 1988, and 1989). This report presents results of the 1989 census, which employed previous survey techniques as closely as field conditions permitted.

For the survey, we flew at an altitude of 600 feet in a Cessna 185[1] for the mainland and in a Partenavia P68 Observer for the Channel Islands. The Cessna is equipped with an optical glass photography port in the airplane floor behind the pilot and the

[1] Use of brand names does not imply endorsement by CDFG or NMFS.

Partenavia is equipped with a large photogrammetric port in the floor behind the copilot seat. These ports enabled us to take nearly vertical pictures of the seals which contributes less counting bias to the survey than oblique pictures.

We photographed (weather permitting) sequentially from south to north, taking advantage of the northward progression by time and location of the low tide. Since the tides progress northward faster than the survey plane, we could only survey a section of the coast each day and started at the southern-most hauling site one hour before local low tide and surveyed northward until an hour and a half after local low tide. We surveyed some sites on consecutive days to assure adequate photographic coverage. A few sites were surveyed on the return south, because they could not be surveyed during our northward flight due to high winds or fog.

In contrast to the coastal sites, we surveyed the major bays and estuaries during the high tide window of one hour before to an hour and a half after local high tide. The Channel Islands were surveyed on two consecutive days between 1100 and 1530 hours.

The survey team consisted of a pilot, data recorder, and photographer. We photographed the seals with a motor-driven Hasselblad camera (model 500-ELM), 80 mm lens, pistol grip, and large capacity (70 frames) film magazine. We used either Kodak 64 or 200 ASA Ektachrome film and utilized a Soligor II spotmeter to

assess lighting conditions. A Nikon 35 mm camera with motor-drive and a 100 mm lens served as a backup camera system in case of Hasselblad malfunctions, but was not needed during the survey. The data recorder kept track of position, time, frames exposed, estimated number of seals in a flight book of coastal charts.

Besides the aerial survey, a group of observers counted seals from the shore (ground counts) at 48 hauling sites during the survey. These observers counted seals each half hour or, if numbers were large, as frequently as conditions permitted. They counted, using binoculars or spotting scopes, from one hour before low tide to one and one half hours after low tide. If the ground count for a site exceeded the aerial count, I used the ground count for the estimated mainland total (Appendix I). This counting technique may create a bias in the total estimate and is being investigated.

After the survey, we had the roles of film from the aerial photographs developed in fifteen foot lengths without cutting using the E-6 process. After identifying the sites, we cut the film into the strips of frames for each site. We used dissecting microscopes to identify the sites and count the seals on the rolls of developed film. For each hauling site, we counted the seals by marking a thin plastic sheet laid over the film. We counted all seals as adults except those easily identified as pups, which we recorded as pups. After identifying the sites and counting the seals, we transferred the data into a microcomputer database for

storage and analysis.

The database includes both aerial and ground count information stored by year (Appendix II). We used the database management program dBASE III Plus[2] to create and maintain the files as individual records for each hauling site along the California coast. The records contain descriptive information about each site as well as the seal counts (Appendix III).

[2] A trademark of Ashton-Tate, 10150 W. Jefferson Blvd., Culver City, CA 90230

RESULTS and DISCUSSION

We surveyed the mainland coast of California on June 12-16, 1989. The total count was 15,911 seals, occupying 260 of 709 hauling sites, including 14 new sites (not previously identified or occupied, Table 1). As with the 1988 census, there were more seals per occupied site than in the previous year and fewer sites were occupied than in the previous year (Table 2). Counties north of San Francisco Bay had a larger portion of the mainland total than did the counties south of San Francisco Bay. The percentage north of the San Francisco Bay is the lowest since CDFG started the survey in 1981 (Table 2).

We surveyed the southern California Channel Islands on May 18 and May 19, using the same techniques as for the mainland. The total count for all eight islands was 4,279 seals (Table 3), which is higher than the previous year (3,947 seals), but lower than the 1987 count (4,322 seals).

The combined mainland and island counts (assuming little movement between counting areas during the census) yield a 1989 total of 20,190 harbor seals in California (Table 2).

ACKNOWLEDGMENTS

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TABLE 1. Harbor seal counts with the number of sites and occupied sites by county for the June 1989 census (DN=Del Norte, H=Humbolt, MEN=Mendocino, SON=Sonoma, MAR=Marin, CC=Contra Costa, SF=San Francisco, ALA=Alameda, SM=San Mateo, FI=Farallon Islands, SC=Santa Cruz, SCL=Santa Clara, M=Monterey, SLO=San Luis Obisbo, SB=Santa Barbara, V=Ventura, SD=San Diego).

County	Seals	% Total	# Sites	# Occupied	Seals/site
DN	789	5	14	4	197
H	1203	8	61	16	75
MEN	1795	11	100	44	41
SON	1424	9	110	43	33
MAR	3049	17	62	16	191
CC	55	<1	1	1	55
SF	38	<1	2	1	19
ALA	227	1	3	3	76
SM	1019	7	45	20	51
FI	42	<1	*	*	*
SC	649	4	14	8	81
SCL	59	<1	1	1	59
M	1792	12	134	40	45
SLO	2308	15	120	44	52
V	139	1	1	1	139
SB	1298	8	36	16	81
SD	25	<1	4	1	25
	15,911	100	709	260	61

*Multiple sites included as one count

TABLE 2. Summary of harbor seal counts for the years 1982-1989.

Year	Mainland			SoCal Island	California
	Total	# sites	% occupied	Total	Total
1982	13,474	426	57	3,865	17,339
1983	10,757	482	38	3,472	14,229
1984	10,885	518	42	3,218	14,103
1985	12,552	581	47	2,280*	14,832
1986	13,913	648	50	1,801*	15,714
1987	15,316	681	47	4,322	19,638
1988	14,493	695	40	3,947	18,440
1989	15,911	709	37	4,279	20,190

*Late June count-probably missed peak abundance

TABLE 3. Southern California Channel Island harbor seal counts by year (SCI=San Clemente Island, CAT=Santa Catalina Island, SBI=Santa Barbara Island, SNI=San Nicolas Island, ANA=Anacapa Island, SCR=Santa Cruz Island, SRI=Santa Rosa Island, SMI=San Miguel Island).

YEAR	SCI	CAT	SBI	SNI	ANA	SCR	SRI	SMI	TOT
1982[1]	8	68	2	694[2]	226	769	1008	1090	3865
1983	31[3]	82[3]	0[3]	694[3]	163[4]	588[4]	910[4]	1004[4]	3472
1984[5]	58	174	0	380	116	888	938	664	3218
1985[6]	67	117	31	139	207	515	585	619	2280
1986[3]	46	37	11	207	47[7]	117	487	1123	2075
1987[8]	180	205	8	470	292	902	1114	1150	4321
1988[9]	54	262	35	550	75	635	1200	1136	3947
1989	245	372	12	434	293	922	1073	928	4279

1 Stewart 1982
2 Stewart and Yochem 1984A
3 Hanan et al. 1987
4 Stewart and Yochem 1984B
5 Hanan et al. 1986A
6 Hanan et al. 1986B
7 Only one site due to fog
8 Hanan et al. 1988
9 Hanan et al. 1989

APPENDIX I. Census results for the 1988 harbor seal survey along the California coast. Date=date of count; Site=site number; Prob (source of problem possibly affecting count): C=camera, D=disturbance, F=fog; Time=time of count or photograph; FA=adult seal count from photograph; FP=count of pups from photograph; FT=total seals from photograph; GA=ground count of adult seals; GP=ground count of pups; GT=total seals from ground count; ET=higher number from FT or GT; Max=maximum count to date for a site.

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	000.1			0	0	0	0	0	0	0	7
	001.0			0	0	0	0	0	0	0	0
	002.0			0	0	0	0	0	0	0	10
6/12/89	003.0		1015	0	0	0	0	0	25	25	25
6/12/89	004.0		1230	0	0	135	0	0	139	139	139
6/14/89	005.0		1145	0	0	0	0	0	3	3	116
6/12/89	006.0		1215	0	0	53	0	0	66	66	70
	007.0			0	0	0	0	0	0	0	53
	008.0			0	0	0	0	0	0	0	11
6/12/89	009.0		1042	0	0	21	0	0	0	21	70
	010.0			0	0	0	0	0	0	0	205
	010.1			0	0	0	0	0	0	0	1
6/12/89	010.8		1104	0	0	0	0	0	0	1	3
6/12/89	011.0		1100	0	0	202	0	0	377	377	554
6/12/89	011.1		1106	0	0	16	0	0	16	16	213
6/12/89	012.0		1108	0	0	29	0	0	1	29	38
	013.0			0	0	0	0	0	0	0	19
	013.1			0	0	0	0	0	0	0	15
6/12/89	014.0		1118	0	0	9	0	0	0	9	13
6/12/89	014.1		1118	0	0	262	0	0	263	263	263
	014.2			0	0	0	0	0	0	0	122
	014.4			0	0	0	0	0	0	0	290
	014.8			0	0	0	0	0	0	0	98
	015.0			0	0	0	0	0	0	0	247
6/13/89	015.1		1300	0	0	0	0	0	94	94	228
	015.2			0	0	0	0	0	0	0	119
6/12/89	016.0		1119	0	0	239	0	0	0	239	239
	017.0			0	0	0	0	0	0	0	57
	017.1			0	0	0	0	0	0	0	18
	018.0			0	0	0	0	0	0	0	127
6/12/89	019.0		1129	0	0	65	0	0	0	65	100
	019.1			0	0	0	0	0	0	0	53
	019.2			0	0	0	0	0	0	0	13
6/12/89	020.0		1130	0	0	34	0	0	0	34	43
6/12/89	021.0		1136	0	0	19	0	0	0	19	19
	021.1			0	0	0	0	0	0	0	10
	021.2			0	0	0	0	0	0	0	26

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	021.3			0	0	0	0	0	0	0	2
	021.5			0	0	0	0	0	0	0	8
6/12/89	022.0		1139	0	0	52	0	0	0	52	67
6/12/89	023.0		1149	0	0	10	0	0	0	10	13
6/12/89	023.1		1148	0	0	3	0	0	0	3	34
	024.0			0	0	0	0	0	0	0	58
6/14/89	025.0		1330	0	0	0	0	0	36	36	138
	026.0		1200	0	0	0	0	0	4	4	51
	026.1			0	0	0	0	0	0	0	22
	027.0			0	0	0	0	0	0	0	29
	028.0			0	0	0	0	0	0	0	20
	029.0			0	0	0	0	0	0	0	2
	030.0			0	0	0	0	0	0	0	2
	031.0			0	0	0	0	0	0	0	67
6/13/89	031.1		1200	0	0	0	0	0	32	32	45
	032.0			0	0	0	0	0	0	0	4
6/14/89	032.1		1400	0	0	0	0	0	93	93	93
	033.0			0	0	0	0	0	0	0	22
	033.1			0	0	0	0	0	0	0	16
6/12/89	033.2		1157	0	0	56	0	0	0	56	56
6/14/89	034.0		1330	0	0	0	0	0	38	38	38
	034.1			0	0	0	0	0	0	0	38
6/12/89	035.0		1315	0	0	31	0	0	41	41	59
	035.1			0	0	0	0	0	0	0	3
6/12/89	036.0		1045	0	0	0	0	0	19	19	42
6/14/89	037.0		1200	0	0	23	0	0	27	27	61
6/13/89	038.0		1400	0	0	0	0	0	48	48	68
6/12/89	039.0		1200	0	0	163	0	0	199	199	199
	039.05			0	0	0	0	0	0	0	15
	039.1			0	0	0	0	0	0	0	9
	040.0			0	0	0	0	0	0	0	126
	040.1			0	0	0	0	0	0	0	1
6/12/89	041.0		1205	0	0	54	0	0	0	54	65
6/13/89	041.1		1400	0	0	19	0	0	116	116	116
6/12/89	041.2		1206	0	0	44	0	0	0	44	73
6/12/89	042.0		1206	0	0	4	0	0	0	4	36
	042.1			0	0	0	0	0	44	0	44
	043.0			0	0	0	0	0	0	0	21
	043.1			0	0	0	0	0	0	0	13
	044.0			0	0	0	0	0	0	0	24
	045.0			0	0	0	0	0	0	0	22
6/13/89	046.0		1315	0	0	31	0	0	35	35	41
	046.1			0	0	0	0	0	0	0	1
	047.0			0	0	0	0	0	0	0	13

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	048.0			0	0	0	0	0	0	0	22
6/12/89	049.0		1217	0	0	45	0	0	0	45	95
	050.0			0	0	0	0	0	0	0	86
	051.0			0	0	0	0	0	0	0	62
	052.0			0	0	0	0	0	0	0	126
6/13/89	053.0		1200	0	0	0	0	0	139	139	197
6/12/89	054.0		1220	0	0	96	0	0	0	96	96
6/12/89	055.0		1221	0	0	130	0	0	0	130	130
6/12/89	055.1		1221	0	0	28	0	0	0	28	75
6/12/89	055.2		1221	0	0	20	0	0	0	20	20
	055.3			0	0	0	0	0	0	0	1
	055.5			0	0	0	0	0	0	0	13
	056.0			0	0	0	0	0	0	0	50
	056.1			0	0	0	0	0	0	0	39
6/12/89	056.2		1226	0	0	11	0	0	0	11	33
	057.0			0	0	0	0	0	0	0	46
	057.1			0	0	0	0	0	0	0	30
	057.2			0	0	0	0	0	0	0	14
	058.0			0	0	0	0	0	0	0	67
6/12/89	058.1		1226	0	0	47	0	0	0	47	51
	058.5			0	0	0	0	0	0	0	18
	058.7			0	0	0	0	0	0	0	21
	058.9			0	0	0	0	0	0	0	43
6/12/89	059.0		1227	0	0	23	0	0	0	23	23
	060.0			0	0	0	0	0	0	0	11
	061.0			0	0	0	0	0	0	0	23
	061.8			0	0	0	0	0	0	0	7
	062.0			0	0	0	0	0	0	0	17
	063.0			0	0	0	0	0	0	0	19
	064.0			0	0	0	0	0	0	0	27
	064.5			0	0	0	0	0	0	0	2
	065.0			0	0	0	0	0	0	0	43
	065.1			0	0	0	0	0	0	0	1
6/12/89	065.2		1228	0	0	51	0	0	0	51	51
6/12/89	066.0		1231	0	0	7	0	0	0	7	51
	066.1			0	0	0	0	0	0	0	45
	066.2			0	0	0	0	0	0	0	1
6/12/89	067.0		1233	0	0	65	0	0	0	65	65
	068.0			0	0	0	0	0	0	0	15
	068.1			0	0	0	0	0	0	0	15
	068.15			0	0	0	0	0	0	0	21
6/12/89	068.2		1234	0	0	42	0	0	0	42	42
6/12/89	068.25		1234	0	0	43	0	0	0	43	43
6/12/89	068.3		1236	0	0	1	0	0	0	1	1

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
6/12/89	069.0		1237	0	0	14	0	0	0	14	15
	069.1			0	0	0	0	0	0	0	15
	070.0			0	0	0	0	0	0	0	28
	070.1			0	0	0	0	0	0	0	15
6/12/89	071.0		1238	0	0	102	0	0	0	102	102
	071.1			0	0	0	0	0	0	0	2
	072.0			0	0	0	0	0	0	0	68
	073.0			0	0	0	0	0	0	0	13
	073.1			0	0	0	0	0	0	0	22
6/14/89	074.0		1429	0	0	56	0	0	63	63	68
	074.1			0	0	0	0	0	0	0	2
6/12/89	075.0		1248	0	0	69	0	0	0	69	69
	075.1			0	0	0	0	0	0	0	2
6/12/89	076.0		1249	0	0	102	0	0	0	102	102
	076.1			0	0	0	0	0	0	0	40
6/12/89	077.0		1252	0	0	8	0	0	0	8	17
6/12/89	077.1		1252	0	0	23	0	0	0	23	23
	078.0			0	0	0	0	0	0	0	104
6/12/89	079.0		1252	0	0	41	0	0	0	41	64
	079.1			0	0	0	0	0	0	0	4
	080.0			0	0	0	0	0	0	0	33
6/12/89	080.1		1253	0	0	11	0	0	0	11	16
	081.0			0	0	0	0	0	0	0	18
	081.1			0	0	0	0	0	0	0	8
	081.2			0	0	0	0	0	0	0	20
6/12/89	081.3		1254	0	0	21	0	0	0	21	21
	082.0			0	0	0	0	0	0	0	70
	083.0			0	0	0	0	0	0	0	58
	084.0			0	0	0	0	0	0	0	14
6/12/89	085.0		1257	0	0	120	0	0	0	120	122
	086.0			0	0	0	0	0	0	0	68
	086.8			0	0	0	0	0	0	0	1
6/12/89	087.0		1300	0	0	131	0	0	0	131	138
	087.1			0	0	0	0	0	0	0	1
	088.0			0	0	0	0	0	0	0	5
	089.0			0	0	0	0	0	0	0	20
6/12/89	090.0		1303	0	0	11	0	0	0	11	15
6/12/89	091.0		1304	0	0	13	0	0	0	13	13
	091.1			0	0	0	0	0	0	0	21
	092.0			0	0	0	0	0	0	0	12
	093.0			0	0	0	0	0	0	0	6
6/12/89	093.1		1305	0	0	18	0	0	0	18	18
6/12/89	093.3		1305	0	0	1	0	0	0	1	1
	094.0			0	0	0	0	0	0	0	2

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	094.1			0	0	0	0	0	0	0	10
	094.2			0	0	0	0	0	0	0	5
	094.3			0	0	0	0	0	0	0	1
	094.4			0	0	0	0	0	0	0	6
	094.5			0	0	0	0	0	0	0	1
	095.0			0	0	0	0	0	0	0	15
6/12/89	096.0		1307	0	0	19	0	0	0	19	19
	096.1			0	0	0	0	0	0	0	14
	096.2			0	0	0	0	0	0	0	2
	096.3			0	0	0	0	0	0	0	1
	096.4			0	0	0	0	0	0	0	3
6/12/89	097.0		1307	0	0	23	0	0	0	23	23
6/12/89	098.0		1311	0	0	25	0	0	0	25	59
	099.0			0	0	0	0	0	0	0	5
	099.1			0	0	0	0	0	0	0	7
	099.2			0	0	0	0	0	0	0	6
	099.5			0	0	0	0	0	0	0	3
	100.0			0	0	0	0	0	0	0	9
	101.0			0	0	0	0	0	0	0	25
6/12/89	102.0		1313	0	0	16	0	0	0	16	44
	102.1			0	0	0	0	0	0	0	2
	103.0			0	0	0	0	0	0	0	1
	103.8			0	0	0	0	0	0	0	9
6/12/89	104.0	C	1314	0	0	11	0	0	0	11	11
	104.1			0	0	0	0	0	0	0	3
	104.2			0	0	0	0	0	0	0	1
	104.3			0	0	0	0	0	0	0	1
6/12/89	104.5	C	1317	0	0	11	0	0	0	11	11
	105.0			0	0	0	0	0	0	0	6
	105.1			0	0	0	0	0	0	0	5
	106.0			0	0	0	0	0	0	0	1
	106.1			0	0	0	0	0	0	0	1
	107.0			0	0	0	0	0	0	0	34
	107.1			0	0	0	0	0	0	0	5
	108.0			0	0	0	0	0	0	0	15
	109.0			0	0	0	0	0	0	0	10
6/12/89	110.0		1322	0	0	127	0	0	0	127	208
6/12/89	111.0		1327	0	0	98	0	0	0	98	98
	112.0			0	0	0	0	0	0	0	43
	113.0			0	0	0	0	0	0	0	37
6/12/89	114.0		?	0	0	28	0	0	0	28	71
	114.1			0	0	0	0	0	0	0	3
	114.2			0	0	0	0	0	0	0	8
	114.3			0	0	0	0	0	0	0	3

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	114.4			0	0	0	0	0	0	0	9
	114.5			0	0	0	0	0	0	0	6
	115.0			0	0	0	0	0	0	0	46
	116.0			0	0	0	0	0	0	0	6
	117.0			0	0	0	0	0	0	0	29
	118.0			0	0	0	0	0	0	0	13
	118.1			0	0	0	0	0	0	0	4
	118.5			0	0	0	0	0	0	0	3
	119.0			0	0	0	0	0	0	0	9
	119.1			0	0	0	0	0	0	0	12
	120.0			0	0	0	0	0	0	0	2
6/12/89	121.0		1330	0	0	1	0	0	0	1	3
	122.0			0	0	0	0	0	0	0	18
	123.0			0	0	0	0	0	0	0	4
	124.0			0	0	0	0	0	0	0	1
	125.0			0	0	0	0	0	0	0	13
	126.0			0	0	0	0	0	0	0	11
6/12/89	126.5		1331	0	0	13	0	0	0	13	13
6/12/89	127.0	C	1332	0	0	102	0	0	0	102	118
	128.0			0	0	0	0	0	0	0	1
6/12/89	129.0		1337	0	0	48	0	0	0	48	54
6/12/89	130.0		1339	0	0	109	0	0	0	109	266
6/12/89	130.1		1340	0	0	30	0	0	0	30	30
	131.0			0	0	0	0	0	0	0	71
	131.1			0	0	0	0	0	0	0	56
6/12/89	131.2		1341	0	0	14	0	0	0	14	14
	131.3			0	0	0	0	0	0	0	64
	132.0			0	0	0	0	0	0	0	107
	132.1			0	0	0	0	0	0	0	8
6/12/89	133.0		1341	0	0	127	0	0	0	127	159
	134.0			0	0	0	0	0	0	0	12
	134.1			0	0	0	0	0	0	0	4
	134.2			0	0	0	0	0	0	0	10
	134.5			0	0	0	0	0	0	0	10
	135.0			0	0	0	0	0	0	0	38
	136.0			0	0	0	0	0	0	0	10
	137.0			0	0	0	0	0	0	0	5
	137.1			0	0	0	0	0	0	0	2
	138.0			0	0	0	0	0	0	0	26
	138.1			0	0	0	0	0	0	0	2
	139.0			0	0	0	0	0	0	0	14
	139.1			0	0	0	0	0	0	0	14
6/13/89	140.0		1152	0	0	6	0	0	0	6	19
	140.1			0	0	0	0	0	0	0	1

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
6/13/89	141.0		1152	0	0	78	0	0	0	78	78
6/13/89	141.1		1155	0	0	24	0	0	0	24	24
	142.0			0	0	0	0	0	0	0	31
6/13/89	143.0		1157	0	0	8	0	0	0	8	8
	143.5			0	0	0	0	0	0	0	2
	144.0			0	0	0	0	0	0	0	28
6/13/89	144.5		1158	0	0	10	0	0	0	10	10
	145.0			0	0	0	0	0	0	0	35
6/13/89	146.0		1159	0	0	72	0	0	0	72	72
	147.0			0	0	0	0	0	0	0	48
6/13/89	148.0		1203	0	0	70	0	0	0	70	70
	149.0			0	0	0	0	0	0	0	71
6/13/89	150.0		1203	0	0	97	0	0	0	97	97
6/13/89	151.0		1204	0	0	66	0	0	0	66	80
6/12/89	152.0		1200	0	0	43	0	0	70	70	85
6/13/89	153.0		1206	0	0	14	0	0	0	14	93
6/13/89	154.0		1207	0	0	67	0	0	0	67	74
	154.1			0	0	0	0	0	0	0	2
	155.0			0	0	0	0	0	0	0	65
	155.1			0	0	0	0	0	0	0	63
6/13/89	156.0		1207	0	0	48	0	0	0	48	61
	156.1			0	0	0	0	0	0	0	54
6/13/89	157.0		1208	0	0	106	0	0	0	106	175
	157.1			0	0	0	0	0	0	0	1
	158.0			0	0	0	0	0	0	0	18
	159.0			0	0	0	0	0	0	0	9
6/13/89	160.0		1210	0	0	7	0	0	0	7	45
	160.05			0	0	0	0	0	0	0	3
	160.1			0	0	0	0	0	0	0	9
6/13/89	161.0		1211	0	0	50	0	0	0	50	50
	161.1			0	0	0	0	0	0	0	32
	161.2			0	0	0	0	0	0	0	6
6/13/89	162.0		1211	0	0	53	0	0	0	53	149
	162.1			0	0	0	0	0	0	0	1
6/13/89	162.2		1212	0	0	0	0	0	0	9	9
	163.0			0	0	0	0	0	0	0	7
6/13/89	164.0		1222	0	0	92	0	0	70	92	92
	164.7			0	0	0	0	0	0	0	41
6/13/89	165.0	D	1232	0	0	89	0	0	70	89	89
6/13/89	166.0		1500	0	0	132	0	0	176	176	176
6/13/89	167.0		1238	0	0	55	0	0	0	55	169
	167.8			0	0	0	0	0	0	0	1
	168.0			0	0	0	0	0	0	0	29
6/13/89	169.0		1241	0	0	23	0	0	0	23	40

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	170.0			0	0	0	0	0	0	0	1
	170.1			0	0	0	0	0	0	0	1
	171.0			0	0	0	0	0	0	0	33
6/13/89	172.0		1245	0	0	145	0	0	0	145	145
6/13/89	173.0		1245	0	0	21	0	0	0	21	53
6/13/89	174.0		1430	0	0	65	0	0	139	139	139
	175.0			0	0	0	0	0	0	0	81
6/13/89	175.5		1248	0	0	0	0	0	0	1	1
	176.0			0	0	0	0	0	0	0	31
6/13/89	177.0		1252	0	0	124	0	0	0	124	124
6/13/89	178.0		1254	0	0	30	0	0	0	30	116
	179.0			0	0	0	0	0	0	0	59
6/13/89	180.0		1254	0	0	29	0	0	0	29	44
6/13/89	181.0		1255	0	0	11	0	0	0	11	17
6/13/89	182.0		1255	0	0	26	0	0	0	26	26
	182.1			0	0	0	0	0	0	0	3
	182.2			0	0	0	0	0	0	0	4
	182.7			0	0	0	0	0	0	0	1
	183.0			0	0	0	0	0	0	0	4
	184.0			0	0	0	0	0	0	0	1
6/13/89	185.0		1258	0	0	43	0	0	0	43	43
	186.0			0	0	0	0	0	0	0	12
	186.1			0	0	0	0	0	0	0	1
	187.0			0	0	0	0	0	0	0	8
6/13/89	187.7		1259	0	0	1	0	0	0	1	1
6/13/89	188.0		1300	0	0	185	0	0	0	185	185
	189.0			0	0	0	0	0	0	0	11
6/13/89	190.0		1301	0	0	105	0	0	0	105	105
	191.0			0	0	0	0	0	0	0	21
	191.1			0	0	0	0	0	0	0	6
	192.0			0	0	0	0	0	0	0	34
	193.0			0	0	0	0	0	0	0	24
	193.1			0	0	0	0	0	0	0	5
6/13/89	194.0		1302	0	0	42	0	0	0	42	54
	194.1			0	0	0	0	0	0	0	1
6/13/89	195.0		1308	0	0	144	0	0	0	144	144
	195.1			0	0	0	0	0	0	0	146
	196.0			0	0	0	0	0	0	0	47
	196.1			0	0	0	0	0	0	0	33
6/13/89	197.0		1317	0	0	109	0	0	0	109	122
	197.1			0	0	0	0	0	0	0	100
6/13/89	198.0		1319	0	0	24	0	0	0	24	125
6/13/89	198.1		1320	0	0	15	0	0	0	15	25
6/13/89	199.0		1318	0	0	15	0	0	0	15	131

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
6/13/89	199.5		1318	0	0	24	0	0	0	24	24
	200.0			0	0	0	0	0	0	0	58
	200.1			0	0	0	0	0	0	0	24
6/13/89	201.0		1321	0	0	2	0	0	0	2	68
	201.1			0	0	0	0	0	0	0	3
6/13/89	202.0		1324	0	0	49	0	0	0	49	58
	202.1			0	0	0	0	0	0	0	1
6/14/89	203.0		0954	0	0	59	0	0	0	59	67
6/14/89	204.0		0959	0	0	12	0	0	0	12	14
6/14/89	205.0		0954	0	0	162	0	0	0	162	328
6/14/89	206.0		0952	0	0	53	0	0	0	53	53
6/15/89	207.0		1345	0	0	19	0	0	32	32	74
6/14/89	208.0		1012	0	0	9	0	0	0	9	17
6/14/89	209.0		1400	0	0	2	0	0	38	38	65
	210.0			0	0	0	0	0	0	0	18
	210.8			0	0	0	0	0	0	0	13
	211.0			0	0	0	0	0	0	0	30
	212.0			0	0	0	0	0	0	0	97
6/15/89	212.5		1200	0	0	7	0	0	8	8	8
6/15/89	213.0		1400	0	0	45	0	0	55	55	123
	214.0			0	0	0	0	0	0	0	34
6/14/89	215.0		1229	0	0	55	0	0	0	55	55
	215.1			0	0	0	0	0	0	0	1
	216.0			0	0	0	0	0	0	0	5
	216.1			0	0	0	0	0	0	0	1
6/14/89	217.0		1237	0	0	182	0	0	0	182	182
	217.1			0	0	0	0	0	0	0	65
6/14/89	218.0		1239	0	0	193	0	0	0	193	193
	218.1			0	0	0	0	0	0	0	24
	219.0			0	0	0	0	0	0	0	25
	219.1			0	0	0	0	0	0	0	1
	219.2			0	0	0	0	0	0	0	1
	219.3			0	0	0	0	0	0	0	4
6/14/89	220.0		1247	0	0	58	0	0	0	58	93
6/14/89	221.0		1248	0	0	714	0	0	0	714	831
	222.0			0	0	0	0	0	0	0	11
	223.0			0	0	0	0	0	0	0	3
6/14/89	224.0		1255	0	0	484	0	0	0	484	509
6/14/89	225.0		1259	0	0	382	0	0	0	382	649
	226.0			0	0	0	0	0	0	0	66
6/16/89	226.1		1300	0	0	35	0	0	0	35	35
	226.2			0	0	0	0	0	0	0	72
	226.3			0	0	0	0	0	0	0	12
	227.0			0	0	0	0	0	0	0	34

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	228.0			0	0	0	0	0	0	0	29
	229.0			0	0	0	0	0	0	0	6
	230.0			0	0	0	0	0	0	0	124
	231.0			0	0	245	0	0	0	245	245
	232.0			0	0	0	0	0	0	0	90
	232.1			0	0	0	0	0	0	0	28
	232.2			0	0	0	0	0	0	0	70
	232.3			0	0	0	0	0	0	0	17
	233.0			0	0	0	0	0	0	0	31
	234.0			0	0	0	0	0	0	0	13
	235.0			0	0	0	0	0	0	0	17
	236.0			0	0	0	0	0	0	0	19
	237.0			0	0	0	0	0	0	0	1
	238.0			0	0	0	0	0	0	0	20
	239.0			0	0	0	0	0	0	0	46
	240.0			0	0	0	0	0	0	0	10
	240.1			0	0	0	0	0	0	0	3
	241.0			0	0	0	0	0	0	0	135
	242.0			0	0	0	0	0	0	0	2
	242.1			0	0	0	0	0	0	0	1
6/16/89	243.0		1247	0	0	30	0	0	0	30	111
6/16/89	244.0		1246	0	0	234	0	0	0	234	234
	244.1			0	0	0	0	0	0	0	1
6/16/89	245.0		1246/48	0	0	201	0	0	0	201	419
	245.1			0	0	0	0	0	0	0	1
	246.0			0	0	0	0	0	0	0	17
	247.0			0	0	0	0	0	0	0	5
6/16/89	247.1		1246	0	0	41	0	0	0	41	41
	248.0			0	0	0	0	0	0	0	431
	248.1			0	0	0	0	0	0	0	72
	248.5			0	0	0	0	0	0	0	30
6/16/89	249.0		1242	0	0	14	0	0	0	14	236
6/16/89	249.1		1240/44	0	0	173	0	0	0	173	173
	249.5			0	0	0	0	0	0	0	22
	250.0			0	0	0	0	0	0	0	3
6/16/89	251.0		1236	0	0	88	0	0	0	88	115
	252.0			0	0	0	0	0	0	0	12
	253.0			0	0	0	0	0	0	0	12
	254.0			0	0	0	0	0	0	0	9
6/11/89	255.0		1400	0	0	15	0	0	45	45	45
	255.1			0	0	0	0	0	0	0	16
	256.0			0	0	0	0	0	0	0	8
6/16/89	257.0	C	1229	0	0	60	0	0	0	60	60
	257.8			0	0	0	0	0	0	0	3

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	258.0			0	0	0	0	0	0	0	2
	259.0			0	0	0	0	0	0	0	1
	259.1			0	0	0	0	0	0	0	1
	260.0			0	0	0	0	0	0	0	2
	260.1			0	0	0	0	0	0	0	1
	261.0			0	0	0	0	0	0	0	3
	261.1			0	0	0	0	0	0	0	10
6/14/89	261.2		1331	0	0	0	0	0	0	0	18
6/12/89	262.0		1205	0	0	268	0	0	318	318	318
6/14/89	263.0		1335	0	0	16	0	0	0	16	31
	263.1			0	0	0	0	0	0	0	21
	263.2			0	0	0	0	0	0	0	15
	264.0			0	0	0	0	0	0	0	26
6/14/89	264.1		1337	0	0	25	0	0	0	25	26
	265.0			0	0	0	0	0	0	0	10
	265.1			0	0	0	0	0	0	0	5
	266.0			0	0	0	0	0	0	0	8
	267.0			0	0	0	0	0	0	0	5
6/14/89	268.0		1341	0	0	35	0	0	0	35	37
	268.1			0	0	0	0	0	0	0	4
	269.0			0	0	0	0	0	0	0	13
	270.0			0	0	0	0	0	0	0	9
6/14/89	270.1		1341	0	0	4	0	0	0	4	13
	270.2			0	0	0	0	0	0	0	1
6/14/89	271.0		1341	0	0	14	0	0	0	14	28
6/14/89	272.0		1341	0	0	9	0	0	0	9	14
	272.1			0	0	0	0	0	0	0	1
6/14/89	273.0		1343	0	0	44	0	0	0	44	70
	273.1			0	0	0	0	0	0	0	1
6/14/89	274.0		1345	0	0	36	0	0	0	36	36
	274.1			0	0	0	0	0	0	0	17
6/14/89	275.0		1345	0	0	37	0	0	0	37	37
6/14/89	276.0		1347	0	0	39	0	0	0	39	39
6/14/89	276.1			0	0	0	0	0	0	0	29
	277.0			0	0	0	0	0	0	0	51
	277.1			0	0	0	0	0	0	0	3
	278.0			0	0	0	0	0	0	0	6
	279.0			0	0	0	0	0	0	0	1
	280.0			0	0	0	0	0	0	0	9
6/14/89	281.0		1349	0	0	28	0	0	0	28	57
6/14/89	282.0		1350	0	0	16	0	0	0	16	50
6/14/89	282.1		1350	0	0	4	0	0	0	4	7
6/14/89	283.0		1351	0	0	2	0	0	0	2	10
	283.1			0	0	0	0	0	0	0	1

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
6/14/89	283.2		1352	0	0	21	0	0	0	21	26
	284.0			0	0	0	0	0	0	0	29
	284.1			0	0	0	0	0	0	0	5
	284.2			0	0	0	0	0	0	0	3
	284.3			0	0	0	0	0	0	0	1
	285.0			0	0	0	0	0	0	0	57
	285.1			0	0	0	0	0	0	0	16
	285.2			0	0	0	0	0	0	0	10
	285.4			0	0	0	0	0	0	0	4
	286.0			0	0	0	0	0	0	0	6
6/14/89	286.1		1353	0	0	9	0	0	0	9	9
6/14/89	286.5		1354	0	0	16	0	0	0	16	16
6/14/89	287.0		1354	0	0	62	0	0	0	62	67
	287.1			0	0	0	0	0	0	0	3
	287.2			0	0	0	0	0	0	0	1
6/14/89	287.3		1356	0	0	2	0	0	0	2	2
	288.0			0	0	0	0	0	0	0	10
6/14/89	289.0		1356	0	0	15	0	0	0	15	17
6/14/89	290.0		1358	0	0	17	0	0	0	17	34
6/14/89	291.0		1358	0	0	11	0	0	0	11	14
	291.1			0	0	0	0	0	0	0	1
	292.0			0	0	0	0	0	0	0	1
6/14/89	292.1		1400	0	0	12	0	0	0	12	12
	293.0			0	0	0	0	0	0	0	18
6/14/89	293.5		1400	0	0	43	0	0	0	43	43
6/14/89	294.0		1401	0	0	11	0	0	0	11	26
	294.1			0	0	0	0	0	0	0	5
	295.0			0	0	0	0	0	0	0	40
6/14/89	296.0		1401	0	0	43	0	0	0	43	115
	296.1			0	0	0	0	0	0	0	2
6/14/89	297.0		1402	0	0	9	0	0	0	9	9
	297.1			0	0	0	0	0	0	0	35
6/14/89	298.0		1404	0	0	9	0	0	0	9	26
6/14/89	298.1		1405	0	0	37	0	0	0	37	48
	298.2			0	0	0	0	0	0	0	4
6/14/89	299.0		1406	0	0	21	0	0	0	21	36
	299.1			0	0	0	0	0	0	0	29
6/14/89	300.0		1407	0	0	15	0	0	0	15	15
	300.1			0	0	0	0	0	0	0	1
	301.0			0	0	0	0	0	0	0	5
	301.1			0	0	0	0	0	0	0	23
6/14/89	302.0		1408	0	0	31	0	0	0	31	125
6/14/89	303.0		1408	0	0	3	0	0	0	3	17
6/14/89	304.0		1409	0	0	47	0	0	0	47	47

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
6/14/89	305.0		1410	0	0	14	0	0	0	14	53
	306.0			0	0	0	0	0	0	0	1
6/14/89	307.0	C	1411	0	0	37	0	0	0	105	164
	308.0			0	0	0	0	0	0	0	74
	309.0			0	0	0	0	0	0	0	45
	310.0			0	0	0	0	0	0	0	3
	310.1			0	0	0	0	0	0	0	1
6/14/89	311.0		1412	0	0	20	0	0	0	20	20
6/14/89	312.0		1413	0	0	17	0	0	0	17	21
	312.1			0	0	0	0	0	0	0	27
6/14/89	313.0		1414	0	0	14	0	0	0	14	79
	313.1			0	0	0	0	0	0	0	9
6/14/89	314.0		1415	0	0	0	0	0	0	1	4
6/14/89	315.0		1416	0	0	48	0	0	0	48	70
	315.1			0	0	0	0	0	0	0	4
	315.2			0	0	0	0	0	0	0	9
6/14/89	315.6		1416	0	0	21	0	0	0	21	21
6/16/89	316.0		1421	0	0	27	0	0	0	27	35
	316.1			0	0	0	0	0	0	0	3
	317.0			0	0	0	0	0	0	0	13
	317.1			0	0	0	0	0	0	0	3
6/16/89	318.0		1422	0	0	32	0	0	0	32	32
	318.1			0	0	0	0	0	0	0	25
	319.0			0	0	0	0	0	0	0	7
	319.1			0	0	0	0	0	0	0	4
6/16/89	320.0		1424	0	0	64	0	0	0	64	69
6/16/89	321.0		1426	0	0	26	0	0	0	26	32
	322.0			0	0	0	0	0	0	0	0
	323.0			0	0	0	0	0	0	0	28
	324.0			0	0	0	0	0	0	0	53
	324.1			0	0	0	0	0	0	0	2
	324.5			0	0	0	0	0	0	0	9
6/16/89	325.0		1428	0	0	34	0	0	0	34	34
6/16/89	325.1		1208	0	0	74	0	0	0	74	74
6/16/89	325.2		1205	0	0	10	0	0	0	10	15
6/16/89	325.7		1202	0	0	14	0	0	0	14	14
6/16/89	326.0		1200	0	0	53	0	0	0	53	145
	327.0			0	0	0	0	0	0	0	48
	327.1			0	0	0	0	0	0	0	57
6/16/89	328.0		1155	0	0	14	0	0	0	14	49
6/16/89	329.0		1155	0	0	83	0	0	0	83	83
	329.1			0	0	0	0	0	0	0	2
	329.5			0	0	0	0	0	0	0	1
6/16/89	330.0	C	1153	0	0	16	0	0	0	16	42

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	331.0			0	0	0	0	0	0	0	1
6/16/89	331.1		1152	0	0	10	0	0	0	10	11
6/16/89	332.0		1149	0	0	65	0	0	0	65	176
	332.1			0	0	0	0	0	0	0	14
6/16/89	332.5		1148	0	0	17	0	0	0	17	17
	333.0			0	0	0	0	0	0	0	60
6/16/89	334.0		1147	0	0	39	0	0	0	39	73
	335.0			0	0	0	0	0	0	0	36
	335.4			0	0	0	0	0	0	0	5
	335.2			0	0	0	0	0	0	0	1
6/16/89	335.8		1145	0	0	21	0	0	0	25	25
6/16/89	336.0	C	1143	0	0	23	0	0	0	23	23
	336.1			0	0	0	0	0	0	0	11
	336.2			0	0	0	0	0	0	0	10
	336.05			0	0	0	0	0	0	0	1
6/16/89	337.0		1142	0	0	16	0	0	0	16	37
	337.1			0	0	0	0	0	0	0	2
6/16/89	338.0		1139	0	0	52	0	0	0	52	74
	338.1			0	0	0	0	0	0	0	1
	338.2			0	0	0	0	0	0	0	13
6/14/89	339.0		1541	0	0	5	0	0	0	5	38
	339.1			0	0	0	0	0	0	0	17
6/14/89	340.0		1542	0	0	5	0	0	0	5	18
	340.05			0	0	0	0	0	0	0	1
	340.1			0	0	0	0	0	0	0	23
6/14/89	341.0		1547	0	0	89	0	0	0	89	98
	342.0			0	0	0	0	0	0	0	32
6/14/89	342.1		1544	0	0	31	0	0	0	31	31
6/14/89	343.0		1544	0	0	18	0	0	0	18	34
	343.1			0	0	0	0	0	0	0	20
6/14/89	344.0		1546	0	0	3	0	0	0	3	22
	344.1			0	0	0	0	0	0	0	15
	345.0			0	0	0	0	0	0	0	31
	345.05			0	0	0	0	0	0	0	13
	345.1			0	0	0	0	0	0	0	24
	345.2			0	0	0	0	0	0	0	25
	345.3			0	0	0	0	0	0	0	21
	346.0			0	0	0	0	0	0	0	41
	347.0			0	0	0	0	0	0	0	21
6/14/89	348.0		1551	0	0	53	0	0	0	53	53
6/14/89	349.0		1552	0	0	37	0	0	0	37	51
	349.1			0	0	0	0	0	0	0	16
	350.0			0	0	0	0	0	0	0	27
6/14/89	351.0		1554	0	0	6	0	0	0	6	18

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
6/15/89	352.0		1548	0	0	86	0	0	120	120	183
6/14/89	352.1		1556	0	0	31	0	0	0	31	39
6/14/89	352.2		1600	0	0	12	0	0	0	12	26
6/14/89	353.0		1601	0	0	42	0	0	0	42	55
6/14/89	354.0		1602	0	0	34	0	0	0	34	46
6/14/89	355.0		1605	0	0	20	0	0	0	20	20
	355.1			0	0	0	0	0	0	0	4
6/14/89	355.5		1608	0	0	32	0	0	0	32	32
	356.0			0	0	0	0	0	0	0	67
6/14/89	356.1		1610	0	0	27	0	0	0	27	100
6/14/89	357.0		1611	0	0	0	0	0	0	3	14
	358.0			0	0	0	0	0	0	0	25
	359.0			0	0	0	0	0	0	0	14
	359.1			0	0	0	0	0	0	0	1
	360.0			0	0	0	0	0	0	0	58
	361.0			0	0	0	0	0	0	0	186
	362.0			0	0	0	0	0	0	0	239
6/14/89	363.0		1617	0	0	387	0	0	0	387	839
	364.0			0	0	0	0	0	0	0	13
6/14/89	365.0		1619	0	0	50	0	0	0	50	154
	366.0			0	0	0	0	0	0	0	240
	366.1			0	0	0	0	0	0	0	142
	367.0			0	0	0	0	0	0	0	10
6/14/89	367.1		1625	0	0	26	0	0	0	26	26
	367.2			0	0	0	0	0	0	0	23
	368.0			0	0	0	0	0	0	0	43
	368.1			0	0	0	0	0	0	0	33
	369.0			0	0	0	0	0	0	0	13
	369.1			0	0	0	0	0	0	0	1
	370.0			0	0	0	0	0	0	0	3
	371.0			0	0	0	0	0	0	0	25
	372.0			0	0	0	0	0	0	0	3
	372.1			0	0	0	0	0	0	0	16
	373.0			0	0	0	0	0	0	0	206
	373.1			0	0	0	0	0	0	0	34
	374.0			0	0	0	0	0	0	0	43
	375.0			0	0	0	0	0	0	0	10
	376.0			0	0	0	0	0	0	0	4
	377.0			0	0	0	0	0	0	0	4
	378.0			0	0	0	0	0	0	0	5
	378.1			0	0	0	0	0	0	0	2
	379.0			0	0	0	0	0	0	0	4
	380.0			0	0	0	0	0	0	0	15
	380.1			0	0	0	0	0	0	0	4

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	380.2			0	0	0	0	0	0	0	2
	381.0			0	0	0	0	0	0	0	73
	381.1			0	0	0	0	0	0	0	441
	381.2			0	0	0	0	0	0	0	81
	381.3			0	0	0	0	0	0	0	15
6/12/89	382.0	C	1153	0	0	0	0	0	533	533	1060
6/16/89	383.0	C		0	0	0	0	0	0	305	830
6/16/89	384.0	C		0	0	0	0	0	0	20	518
6/15/89	385.0		1022	0	0	93	0	0	0	93	170
	386.0			0	0	0	0	0	0	0	9
	386.1			0	0	0	0	0	0	0	1
	387.0			0	0	0	0	0	0	0	17
6/14/89	388.0		1531	0	0	0	0	0	20	20	39
6/13/89	389.0		1342	0	0	0	0	0	17	17	31
6/15/89	390.0		1452	0	0	18	0	0	0	18	79
	390.1			0	0	0	0	0	0	0	14
6/14/89	391.0		1401	0	0	0	0	0	8	8	43
6/15/89	392.0		1453	0	0	14	0	0	0	17	19
6/13/89	393.0		1512	0	0	0	0	0	1	1	93
6/13/89	394.0		1342	0	0	0	0	0	29	29	29
6/13/89	395.0		1512	0	0	26	0	0	42	42	42
	395.1			0	0	0	0	0	0	0	1
	396.0			0	0	0	0	0	0	0	23
	396.1			0	0	0	0	0	0	0	16
	397.0			0	0	0	0	0	0	0	12
	398.0			0	0	0	0	0	0	0	43
	398.1			0	0	0	0	0	0	0	6
6/15/89	399.0		1459	0	0	55	0	0	0	55	69
6/15/89	399.1		1500	0	0	25	0	0	0	25	25
	400.0			0	0	0	0	0	0	0	67
	401.0			0	0	0	0	0	0	0	24
	402.0			0	0	0	0	0	0	0	15
	403.0			0	0	0	0	0	0	0	27
	404.0			0	0	0	0	0	0	0	79
6/15/89	405.0		1501	0	0	15	0	0	0	15	30
	405.05			0	0	0	0	0	0	0	3
	405.1			0	0	0	0	0	0	0	1
	406.0			0	0	0	0	0	0	0	55
	407.0			0	0	0	0	0	0	0	9
6/15/89	407.1		1509	0	0	5	0	0	0	5	13
	408.0			0	0	0	0	0	0	0	10
	409.0			0	0	0	0	0	0	0	341
	410.0			0	0	0	0	0	0	0	48
	411.0			0	0	0	0	0	0	0	20

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	412.0			0	0	0	0	0	0	0	56
	413.0			0	0	0	0	0	0	0	96
	413.1			0	0	0	0	0	0	0	1
6/15/89	414.0		1524	0	0	440	0	0	0	440	516
6/15/89	415.0		1525	0	0	8	0	0	0	8	100
	416.0			0	0	0	0	0	0	0	61
	417.0			0	0	0	0	0	0	0	3
6/15/89	418.0		1531	0	0	304	0	0	0	304	542
	419.0			0	0	0	0	0	0	0	3
6/15/89	420.0		1544	0	0	37	0	0	0	37	37
	421.0			0	0	0	0	0	0	0	9
6/16/89	422.0			0	0	0	0	0	42	42	84

APPENDIX II. Harbor seal counts by site and census (82R=April 1982, 83R= April 1983, 82=May-June 1982, 83=June 1983, 84=June 1984, 85=May-June 1985, 86=June 1986, 87=June 1987, 88=June 1988, 89=June 1989); sites are underlined for those censuses conducted during pupping season. Sites are blank until the census when seals were first observed or for censuses when not surveyed.

YEAR	82R	83R	82	83	84	85	86	87	88	89
SITE										
0.1					7					
1.0	0	0	0	0	0	0	0	0	0	0
2.0	0	0	0	0	0	0	0	10	4	0
3.0	19	24	6	13	9	16	13	4	13	25
4.0	72	67	85	95	94	72	99	94	120	139
5.0	30	93	0	0	5	48	68	31	87	3
6.0	26	13	12	0	22	0	3	41	70	66
7.0	31	23	53	0	0	52	35	15	14	0
8.0	0	0	0	0	0	0	0	11	0	0
9.0	0	0	0	0	0	19	4	38	18	21
10.0	68	0	0	205	29	0	62	8	0	0
10.1							1	0	0	0
10.8								3	0	1
11.0	242	223	412	554	375	388	385	303	203	377
11.1								56	213	16
12.0	3	4	38	0	18	30	18	12	0	29
13.0	19	0	9	0	0	0	1	0	0	0
13.1		2		0	0	0	0	12	5	0
14.0	0	0	0	13	0	0	1	0	0	9
14.1				31	0	13	0	6	0	263
14.2								122	0	0
14.4							290	277	173	0
14.8							70	68	98	0
15.0	0	143	24	247	0	59	140	113	150	0
15.1						228	0	72	75	94
15.2						119	0	0	0	0
16.0	0	0	0	49	71	78	107	56	113	239
17.0	0	23	41	0	0	0	0	0	37	0
17.1									0	0
18.0	17	0	18	0	0	0	0	0	0	0
19.0	70	21	0	94	100	70	92	53	50	65
19.1								4	7	0
19.2								13	0	0
20.0	2	0	18	0	0	33	43	0	32	34
21.0	0	0	0	4	0	6	3	0	0	19
21.1				10	0	0	0	0	0	0
21.2					26	0	0	0	0	0
21.3					2	0	0	0	0	0
21.5								8	0	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88	89
22.0	60	18	46	51	62	67	67	26	48	52
23.0	0	0	0	0	0	0	0	0	0	10
23.1				2	0	34	0	0	2	3
24.0	19	0	0	58	0	5	0	3	0	0
25.0	81	39	138	0	30	44	110	28	36	36
26.0	51	0	0	0	0	0	0	0	0	4
26.1	0	22	0	0	0	0	0	0	0	0
27.0	22	0	29	0	0	19	0	0	13	0
28.0	0	0	0	0	0	0	0	19	0	0
29.0	0	2	0	0	0	0	0	0	1	0
30.0	0	0	0	0	0	0	0	0	0	0
31.0	40	0	67	0	0	0	0	13	0	0
31.1						12	6	0	45	38
32.0	0	0	1	0	0	0	0	0	0	0
32.1									52	93
33.0	13	14	0	0	0	0	0	7	22	0
33.1		16		0	0	0	0	0	0	0
33.2						28	17	17	6	56
34.0	11	3	0	0	20	0	10	0	17	38
34.1					38	0	0	0	0	0
35.0	20	14	58	20	2	29	26	19	59	41
35.1		3		0	0	0	0	0	0	0
36.0	0	0	22	13	15	18	32	0	42	19
37.0	16	0	60	0	61	15	34	48	60	27
38.0	9	0	0	0	0	0	0	0	68	48
39.0	29	0	132	66	124	55	146	118	182	199
39.05								15	0	0
39.1							9	2	0	0
40.0	0	0	0	0	0	0	0	0	0	0
40.1						1	0	0	0	0
41.0	23	5	57	25	21	0	41	45	18	54
41.1					49	0	0	0	94	116
41.2							14	3	73	44
42.0	17	12	9	36	0	27	5	0	0	4
42.1				12	0	0	16	12	35	0
43.0	0	0	21	0	0	12	0	0	4	0
43.1		1		0	0	0	2	13	0	0
44.0	24	12	0	0	0	0	1	0	7	0
45.0	1	22	0	0	0	0	14	0	0	0
46.0	41	37	29	41	33	31	29	38	39	35
46.1		1		0	0	0	0	0	0	0
47.0	1	0	0	0	0	0	0	0	0	0
48.0	19	0	0	0	0	0	0	0	0	0
49.0	15	0	0	10	0	95	53	27	50	45
50.0	86	0	53	0	0	0	0	6	44	0
51.0	15	0	0	0	0	0	0	0	62	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88	89
52.0	23	0	24	0	0	100	24	0	126	0
53.0	90	80	197	27	13	82	97	87	6	139
54.0	0	0	42	43	0	63	14	0	0	96
55.0	0	29	35	101	0	0	47	0	0	130
55.1					30	12	0	75	0	28
55.2							12	0	0	20
55.3								1	0	0
55.5								1	13	0
56.0	30	50	0	0	0	8	0	0	42	0
56.1		39		12	0	0	0	0	0	0
56.2		7		0	0	2	0	33	0	11
57.0	46	0	0	2	0	0	0	0	0	0
57.1						10	30	0	0	0
57.2						14	0	0	0	0
58.0	0	0	0	18	15	0	15	20	0	0
58.1				51	0	0	34	0	0	47
58.5									18	0
58.7								6	21	0
58.9								10	43	0
59.0	3	0	0	0	0	8	0	17	14	23
60.0	10	11	0	0	0	0	0	0	0	0
61.0	0	0	4	0	12	12	0	23	18	0
61.8									7	0
62.0	0	0	17	0	0	0	0	0	0	0
63.0	8	0	19	0	0	0	0	0	0	0
64.0	27	11	0	9	0	0	11	0	0	0
64.5									2	0
65.0	32	8	42	43	0	0	21	0	0	0
65.1		1		0	0	0	0	0	0	0
65.2					28	2	0	51	0	51
66.0	17	14	0	51	15	0	0	4	0	7
66.1		10		8	0	9	45	39	43	0
66.2		1		0	0	0	0	0	1	0
67.0	8	0	0	0	0	3	6	0	0	65
68.0	0	0	0	0	14	0	0	0	0	0
68.15									11	0
68.1						15	0	12	21	0
68.2							13	0	0	42
68.25										43
68.3							1	0	0	1
69.0	9	0	15	0	0	0	4	5	4	14
69.1					15	0	9	5	0	0
70.0	18	10	11	0	0	0	28	10	0	0
70.1				8	0	0	0	0	0	0
71.0	23	0	8	87	28	56	74	27	101	102
71.1					2	0	0	0	0	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88	89
72.0	68	0	23	0	0	21	20	0	0	0
73.0	8	13	0	0	0	0	0	0	0	0
73.1	0	5	0	0	0	1	0	0	0	0
74.0	39	33	50	48	33	45	55	49	61	63
74.1							2	0	0	0
75.0	17	7	0	23	20	3	11	32	0	69
75.1							2	0	0	0
76.0	71	48	0	91	25	58	82	51	75	102
76.1					40	0	24	6	0	0
77.0	5	0	0	17	0	0	0	0	0	8
77.1				1	0	0	4	0	0	23
78.0	54	13	51	0	0	0	25	39	38	0
79.0	45	0	58	34	30	0	36	27	43	41
79.1							4	0	0	0
80.0	12	0	33	0	0	0	0	0	0	0
80.1						16	0	14	0	11
81.0	0	0	0	0	0	8	0	0	0	0
81.1						8	0	0	0	0
81.2						20	0	0	0	0
81.3						10	0	24	13	21
82.0	0	0	0	0	13	0	0	0	0	0
83.0	0	0	0	3	0	0	0	0	0	0
84.0	0	0	0	0	0	11	4	7	14	0
85.0	67	14	122	64	77	37	109	102	74	120
86.0	25	26	18	4	0	0	3	0	15	0
86.8									0	0
87.0	80	0	138	101	121	28	53	46	79	131
87.1	0	0	0	0	0	0	0	0	0	0
88.0	0	0	0	0	0	0	0	0	0	0
89.0	0	0	0	0	0	0	0	0	0	0
90.0	0	0	0	0	0	0	0	0	0	11
91.0	0	0	0	0	0	0	1	1	0	13
91.1	0			21	0	0	0	0	0	0
92.0	0	0	0	0	0	0	6	0	0	0
93.0	0	0	1	0	0	0	1	6	0	0
93.1					9	0	0	9	0	18
93.3										1
94.0	0	0	2	0	0	0	0	0	0	0
94.1						10	9	0	0	0
94.2						4	0	0	5	0
94.3						1	0	0	0	0
94.4							6	0	0	0
94.5							1	0	0	0
95.0	1	0	7	0	15	0	0	0	0	0
96.0	0	0	1	0	0	0	1	0	0	19
96.1					14	0	1	0	3	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88	89
96.2						2	0	0	0	0
96.3						1	0	0	0	0
96.4						3	0	0	0	0
97.0	22	0	1	0	10	15	20	20	9	23
98.0	19	0	59	10	0	0	43	31	14	25
99.0	0	0	0	0	0	0	0	0	0	0
99.1						7	1	2	0	0
99.2						3	0	6	6	0
99.5								3	0	0
100.0	0	0	9	0	0	0	0	4	0	0
101.0	14	0	9	9	0	0	0	18	25	0
102.0	20	0	44	4	0	0	28	14	15	16
102.1							2	0	0	0
103.0	0	0	1	0	0	0	0	0	0	0
103.8									9	0
104.0	0	0	7	0	0	0	5	0	0	11
104.1							3	0	0	0
104.2							1	0	0	0
104.3							1	0	0	0
104.5										11
105.0	0	0	6	0	0	0	0	1	2	0
105.1							5	0	0	0
106.0	0	0	1	0	0	0	0	0	1	0
106.1							1	0	1	0
107.0	29	0	34	18	0	8	6	0	33	0
107.1							5	0	0	0
108.0	0	0	15	0	0	0	10	0	0	0
109.0	4	0	0	0	0	10	0	0	0	0
110.0	128	150	125	79	82	159	190	99	208	127
111.0	0	0	13	10	15	6	0	25	21	98
112.0	13	0	7	0	0	0	0	0	43	0
113.0	0	0	0	0	0	37	0	0	0	0
114.0	0	0	27	0	0	0	0	51	19	28
114.1		3		0	1	0	0	0	0	0
114.2		8		0	0	0	0	0	0	0
114.3							3	0	0	0
114.4							9	0	0	0
114.5							6	2	0	0
115.0	0	0	0	0	0	0	0	0	0	0
116.0	0	0	0	0	0	4	2	6	1	0
117.0	0	0	29	13	4	11	0	0	10	0
118.0	7	0	10	0	0	0	0	0	0	0
118.1							4	3	0	0
118.5									0	0
119.0	0	0	0	0	0	0	0	0	9	0
119.1						12	6	0	0	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88	89
120.0	2	0	0	0	0	0	0	0	2	0
121.0	2	0	3	0	0	0	0	1	0	1
122.0	0	2	18	0	0	0	0	2	0	0
123.0	0	0	1	0	0	0	0	0	0	0
124.0	0	0	1	0	0	0	0	0	0	0
125.0	13	0	7	5	0	0	4	5	2	0
126.0	0	0	11	0	0	0	0	0	0	0
126.5								2	0	13
127.0	71	17	97	43	87	56	43	59	118	102
128.0	0	0	0	0	0	0	0	0	0	0
129.0	4	0	39	0	20	35	33	27	15	48
130.0	266	106	190	159	64	110	119	140	153	109
130.1							8	0	0	30
131.0	29	18	0	0	0	0	0	71	33	0
131.1		56		0	0	0	0	0	0	0
131.2		3		0	0	1	0	0	0	14
131.3					64	0	0	0	0	0
132.0	32	0	0	15	0	0	0	107	33	0
132.1							8	0	0	0
133.0	61	0	158	0	19	149	159	0	114	127
134.0	6	0	0	0	0	12	6	0	0	0
134.1						4	0	0	0	0
134.2						10	0	1	0	0
134.5							10	0	0	0
135.0	38	0	12	0	0	0	0	0	0	0
136.0	5	0	10	0	0	0	0	7	4	0
137.0	5	0	0	0	0	0	0	0	1	0
137.1				2	0	0	0	0	0	0
138.0	0	0	26	14	20	24	16	16	0	0
138.1							2	0	0	0
139.0	0	0	14	12	0	0	0	7	0	0
139.1							9	14	0	0
140.0	0	0	10	0	0	0	3	5	9	6
140.1		1		0	0	0	0	0	0	0
141.0	22	0	71	24	23	0	10	44	20	78
141.1		3		0	0	2	0	0	0	24
142.0	13	0	22	0	3	0	6	7	0	0
143.0	0	0	2	0	0	0	0	0	0	8
143.5								2	0	0
144.0	28	0	19	0	11	0	11	17	0	0
144.5								1	0	10
145.0	25	0	24	7	0	0	0	5	35	0
146.0	0	0	0	17	18	0	37	50	0	72
147.0	0	0	32	0	0	0	0	0	0	0
148.0	10	0	25	0	12	33	22	62	6	70
149.0	36	51	71	24	1	0	30	39	6	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88	89
150.0	51	56	96	58	64	52	49	42	331	97
151.0	60	14	53	8	23	41	78	80	22	66
152.0	29	20	42	0	39	42	32	85	55	70
153.0	32	13	6	13	5	0	24	74	9	14
154.0	16	0	18	0	19	20	0	44	12	67
154.1					2	0	0	0	0	0
155.0	0	7	29	27	1	0	65	55	0	0
155.1						17	0	63	18	0
156.0	14	31	47	0	9	2	18	61	0	48
156.1	0	14	0	54	0	0	0	0	0	0
157.0	145	138	145	120	98	102	175	151	132	106
157.1							1	0	0	0
158.0	2	0	0	0	1	18	0	0	0	0
159.0	6	0	0	0	0	0	0	9	0	0
160.0	33	21	35	43	8	0	45	8	34	7
160.05							3	0	0	0
160.1		2		0	1	0	0	5	0	0
161.0	7	21	49	0	22	13	0	0	3	50
161.1						9	0	32	0	0
161.2						6	0	2	0	0
162.0	101	76	149	112	85	101	103	105	59	53
162.1		1		0	0	0	0	0	0	0
162.2										9
163.0	0	0	0	7	0	0	0	0	0	0
164.0	0	5	17	34	35	38	22	39	54	92
164.7									41	0
165.0	33	0	28	34	8	68	20	2	20	89
166.0	86	36	138	0	49	82	113	122	149	176
167.0	0	58	28	45	136	73	169	69	67	55
167.8									1	0
168.0	0	0	29	0	0	0	0	0	0	0
169.0	39	31	39	40	31	32	28	17	22	23
170.0	0	0	1	0	0	0	0	0	1	0
170.1							1	0	0	0
171.0	0	33	8	3	0	0	0	0	0	0
172.0	0	19	120	83	63	65	0	136	144	145
173.0	23	53	12	0	0	4	0	0	12	21
174.0	86	0	23	0	18	0	5	0	0	139
175.0	81	46	53	26	0	35	26	24	26	0
175.5										1
176.0	25	31	3	1	20	0	0	23	7	0
177.0	60	5	71	16	90	0	87	48	5	124
178.0	43	43	83	74	10	92	116	12	10	30
179.0	0	0	36	0	0	3	0	59	13	0
180.0	21	20	44	22	0	21	5	2	22	29
181.0	7	17	0	0	0	0	0	1	1	11

YEAR SITE	82R	83R	82	83	84	85	86	87	88	89
182.0	0	0	3	0	0	0	2	0	0	26
182.1						3	1	0	0	0
182.2							4	3	3	0
182.7									1	0
183.0	0	4	1	0	0	0	0	0	0	0
184.0	0	1	1	0	0	0	0	1	1	0
185.0	0	1	3	0	19	12	10	23	22	43
186.0	12	0	9	0	0	0	2	0	0	0
186.1							1	0	0	0
187.0	4	2	0	0	1	8	0	0	0	0
187.7										1
188.0	50	39	70	95	109	57	106	106	111	185
189.0	0	0	0	0	0	0	0	3	0	0
190.0	43	0	23	53	71	0	42	61	69	105
191.0	0	0	0	0	0	0	0	12	0	0
191.1							6	5	2	0
192.0	9	29	10	20	0	0	11	7	5	0
193.0	0	24	0	0	0	0	0	9	5	0
193.1						5	0	0	0	0
194.0	20	33	45	29	6	41	54	38	1	42
194.1							1	0	0	0
195.0	0	26	34	40	12	0	2	0	0	144
195.1		20		0	0	0	0	0	146	0
196.0	0	0	7	0	21	33	29	47	0	0
196.1						19	15	33	0	0
197.0	57	11	104	84	38	122	121	72	50	109
197.1		80		0	0	100	0	0	59	0
198.0	23	36	118	0	125	0	90	3	0	24
198.1							25	0	0	15
199.0	0	25	0	45	0	0	0	131	27	15
199.5										24
200.0	23	0	7	58	0	0	0	0	0	0
200.1						24	0	0	0	0
201.0	30	34	0	5	0	0	19	38	68	2
201.1						3	0	0	0	0
202.0	0	11	31	35	11	23	58	45	23	49
202.1					0	0	0	0	0	0
203.0	0	0	0	0	1	67	0	0	0	59
204.0	0	13	0	1	0	0	11	0	0	12
205.0	283	154	197	125	311	76	147	328	122	162
206.0	0	0	0	7	0	0	24	5	41	53
207.0	0	8	60	17	40	39	41	74	31	32
208.0	0	0	7	0	0	0	0	0	0	9
209.0	0	8	0	58	47	53	63	30	65	38
210.0	0	0	0	0	0	0	0	0	18	0
210.8								13	0	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88	89
211.0	0	0	0	0	0	0	0	0	0	0
212.0	0	0	0	0	0	0	0	0	0	0
212.5										8
213.0	40	71	85	85	64	99	86	123	105	55
214.0	0	0	8	3	0	0	0	1	0	0
215.0	12	5	10	3	20	13	24	24	13	55
215.1					1	0	0	0	0	0
216.0	0	0	1	0	5	0	4	0	0	0
216.1							1	0	0	0
217.0	36	61	88	103	143	54	69	153	113	182
217.1					2	0	0	0	0	0
218.0	115	101	112	118	7	185	183	85	72	193
218.1		24		0	0	0	0	0	0	0
219.0	5	19	4	19	8	0	9	11	0	0
219.1						1	1	0	0	0
219.2						1	0	0	0	0
219.3						4	0	0	0	0
220.0	93	32	88	30	47	49	19	70	66	58
221.0	646	634	615	583	831	505	589	717	762	714
222.0	11	0	0	0	0	0	9	0	0	0
223.0	0	0	0	0	0	3	0	0	0	0
224.0	0	0	509	86	508	200	300	204	61	484
225.0	543	400	516	214	172	453	309	649	276	382
226.0	10	0	0	66	0	0	0	0	0	0
226.1				21	0	0	0	0	0	35
226.2				72	0	0	0	0	0	0
226.3				12	0	0	0	0	0	0
227.0	0	0	34	0	0	0	0	0	0	0
228.0	29	0	0	0	0	0	0	3	0	0
229.0	0	0	0	0	0	0	0	0	0	0
230.0	7	0	1	0	0	124	0	2	0	0
231.0	38	73	101	0	0	0	22	101	155	245
232.0	3	64	64	0	66	0	90	0	0	0
232.1					11	0	0	28	0	0
232.2					3	0	70	0	0	0
232.3							1	17	0	0
233.0	24	0	31	0	3	0	0	2	0	0
234.0	13	0	0	0	0	0	0	0	1	0
235.0	17	0	0	0	0	0	0	0	0	0
236.0	19	11	1	0	0	0	0	0	1	0
237.0	0	0	0	0	0	0	0	0	0	0
238.0	12	0	4	0	0	20	11	1	2	0
239.0	0	0	1	0	0	24	0	20	46	0
240.0	0	0	0	0	0	0	0	0	0	0
240.1		3		0	0	0	0	0	0	0
241.0	122	28	86	105	135	0	32	0	0	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88	89
242.0	2	0	1	0	0	0	0	0	0	0
242.1		1		0	0	0	0	0	1	0
243.0	53	0	53	30	0	29	0	111	0	30
244.0	59	41	86	20	39	71	144	0	179	234
244.1					1	1	0	0	0	0
245.0	165	37	256	247	142	370	204	178	256	201
245.1							1	0	0	0
246.0	0	0	12	0	8	5	8	9	17	0
247.0	5	3	0	0	0	0	3	0	3	0
247.1									13	41
248.0	338	289	196	215	0	283	280	431	289	0
248.1					72	0	0	0	0	0
248.5							30	15	0	0
249.0	27	31	136	44	47	76	35	14	17	14
249.1						1	0	0	5	173
249.5							22	0	0	0
250.0	3	0	1	0	0	0	0	0	0	0
251.0	106	36	115	0	99	71	88	82	58	88
252.0	0	0	0	0	0	0	1	12	0	0
253.0	0	0	11	0	0	1	4	12	3	0
254.0	9	0	1	0	0	0	0	0	1	0
255.0	0	0	8	0	0	18	17	14	0	45
255.1					16	0	0	0	0	0
256.0	0	0	8	0	0	0	0	3	0	0
257.0	29	16	47	13	38	35	15	28	17	60
257.8									3	0
258.0	2	0	0	0	0	0	0	1	0	0
259.0	0	0	0	0	0	0	0	0	0	0
259.1							1	0	0	0
260.0	2	0	0	0	0	0	0	0	0	0
260.1							1	0	0	0
261.0	0	0	0	0	0	0	0	0	0	0
261.1		10		0	0	7	1	0	0	0
261.2		8		6	0	0	18	8	3	0
262.0	119	183	127	140	93	188	258	239	226	318
263.0	31	0	0	0	0	0	0	0	25	16
263.1						21	0	1	0	0
263.2						8	0	3	15	0
264.0	2	0	0	0	26	0	0	12	0	0
264.1							12	24	26	25
265.0	0	0	0	0	1	0	0	0	0	0
265.1						5	4	4	0	0
266.0	2	0	8	0	0	0	0	0	0	0
267.0	5	0	0	0	3	0	0	0	0	0
268.0	8	16	0	0	5	14	15	33	37	35
268.1				2	0	4	0	0	0	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88	89
269.0	12	0	13	0	0	0	0	0	0	0
270.0	0	0	0	0	0	1	0	0	0	0
270.1		3		0	0	0	1	0	0	4
270.2		1		0	0	0	0	0	0	0
271.0	28	0	8	0	10	21	14	18	11	14
272.0	1	0	12	6	14	0	0	0	0	9
272.1					1	0	0	0	0	0
273.0	70	34	49	24	6	4	10	23	0	44
273.1							1	0	0	0
274.0	22	22	18	0	3	0	4	33	25	36
274.1		1		0	3	17	0	0	0	0
275.0	0	0	20	17	10	0	12	12	3	37
276.0	3	0	0	0	0	21	0	0	6	39
276.1							29	24	16	0
277.0	27	0	51	0	15	36	37	20	0	0
277.1		3		0	0	0	1	0	0	0
278.0	0	0	0	0	0	0	0	0	0	0
279.0	0	0	1	0	0	0	0	0	0	0
280.0	9	3	0	0	0	0	0	0	0	0
281.0	0	0	21	0	15	57	32	20	24	28
282.0	11	31	0	50	48	0	0	11	21	16
282.1						3	2	3	7	4
283.0	10	0	0	0	0	0	0	0	0	2
283.1					1	0	1	0	1	0
283.2						10	12	12	26	21
284.0	24	14	29	0	0	14	5	9	12	0
284.1				5	0	0	0	0	0	0
284.2					3	0	0	0	0	0
284.3					1	0	0	0	0	0
285.0	0	0	0	0	0	0	0	0	0	0
285.1					16	0	0	0	0	0
285.2					10	2	0	0	0	0
285.4							4	0	0	0
286.0	0	0	0	0	0	0	0	0	0	0
286.1										9
286.5							3	0	0	16
287.0	4	24	64	39	67	46	49	51	54	62
287.1		3		0	0	0	0	0	3	0
287.2							1	0	0	0
287.3								2	0	2
288.0	0	0	2	0	0	0	10	2	0	0
289.0	10	2	9	0	0	0	0	0	4	15
290.0	31	34	0	27	0	26	0	34	22	17
291.0	0	0	1	0	9	3	7	0	14	11
291.1					1	0	0	0	0	0
292.0	1	0	0	0	0	0	0	1	1	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88	89
292.1								2	0	12
293.0	18	0	0	0	0	0	0	0	0	0
293.5								7	9	43
294.0	0	21	4	0	8	26	14	15	0	11
294.1					5	0	0	0	0	0
295.0	0	0	40	0	0	20	0	0	0	0
296.0	35	30	52	34	79	44	69	115	77	43
296.1							2	0	0	0
297.0	0	0	2	0	0	0	0	1	2	9
297.1		3		2	35	0	0	1	0	0
298.0	26	1	0	0	0	0	21	26	4	9
298.1		23		14	0	13	48	48	33	37
298.2						4	0	0	0	0
299.0	10	9	25	0	36	21	0	22	0	21
299.1					29	2	0	0	1	0
300.0	0	0	1	0	0	0	0	2	0	15
300.1							1	0	0	0
301.0	1	0	0	0	0	0	0	3	5	0
301.1							23	0	0	0
302.0	87	55	125	74	67	70	62	59	56	31
303.0	10	17	4	2	13	0	6	6	4	3
304.0	26	18	39	0	0	18	17	30	23	47
305.0	29	6	45	0	0	53	41	8	5	14
306.0	0	0	1	0	0	0	0	0	0	0
307.0	131	73	109	46	51	164	71	159	75	105
308.0	0	0	0	0	72	0	74	0	0	0
309.0	18	37	0	44	45	0	43	0	25	0
310.0	3	0	0	0	0	0	0	0	0	0
310.1						1	0	0	0	0
311.0	8	10	0	0	6	0	18	1	0	20
312.0	6	5	0	0	7	0	17	10	21	17
312.1					27	0	0	0	0	0
313.0	27	17	0	15	0	54	27	79	22	14
313.1							9	0	0	0
314.0	4	0	0	0	0	0	0	0	0	1
315.0	39	31	0	25	33	48	41	55	70	48
315.1						4	0	0	0	0
315.2								9	0	0
315.6										21
316.0	27	2	0	0	0	35	28	16	0	27
316.1		1		0	0	0	0	3	0	0
317.0	13	0	0	0	0	0	0	0	5	0
317.1						3	0	0	0	0
318.0	6	14	15	15	19	19	16	22	28	32
318.1							25	0	0	0
319.0	5	2	0	0	0	0	0	7	0	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88	89
319.1						4	0	0	0	0
320.0	42	40	57	49	69	0	56	36	0	64
321.0	0	4	4	0	0	14	15	23	32	26
322.0	0	0	0	0	0	0	0	0	0	0
323.0	25	0	17	0	0	28	0	23	1	0
324.0	36	53	0	0	14	15	0	7	17	0
324.1					2	0	0	0	0	0
324.5									9	0
325.0	0	0	0	27	2	0	25	4	6	34
325.1							35	35	32	74
325.2								15	0	10
325.7										14
326.0	63	48	84	46	86	74	145	74	95	53
327.0	33	48	0	28	0	0	22	1	20	0
327.1						24	0	57	37	0
328.0	20	0	0	27	49	33	16	23	0	14
329.0	2	0	0	0	1	0	46	57	27	83
329.1							2	0	0	0
329.5									1	0
330.0	25	16	32	21	0	37	32	42	23	16
331.0	0	0	0	0	1	0	0	0	0	0
331.1								11	9	10
332.0	33	83	176	89	76	54	94	103	76	65
332.1								14	0	0
332.5							7	0	0	17
333.0	35	0	33	0	60	43	35	50	27	0
334.0	19	0	45	33	36	19	73	11	0	39
335.0	0	36	4	0	0	0	0	0	0	0
335.1						5	0	0	0	0
335.2								1	0	0
335.8										25
336.0	12	6	12	12	19	3	6	9	10	23
336.05								11	0	0
336.1		10		0	0	0	0	9	0	0
336.2						1	0	0	0	0
337.0	33	13	0	25	24	37	19	32	35	16
337.1		2		0	0	0	0	0	0	0
338.0	9	43	48	52	48	25	37	26	74	52
338.1						1	0	0	0	0
338.2								13	6	0
339.0	28	11	38	22	7	0	0	0	0	5
339.1						17	12	0	0	0
340.0	0	0	0	8	18	0	13	7	14	5
340.05							1	0	0	0
340.1					14	1	23	16	0	0
341.0	36	66	49	50	69	73	98	71	41	89

YEAR SITE	82R	83R	82	83	84	85	86	87	88	89
342.0	29	23	32	0	0	0	0	0	0	0
342.1				7	0	25	0	23	24	31
343.0	11	31	27	0	2	24	24	34	9	18
343.1						20	0	0	0	0
344.0	17	19	18	15	20	22	19	11	13	3
344.1								3	0	0
345.0	0	0	31	0	0	0	0	0	0	0
345.05							13	0	0	0
345.1							24	5	0	0
345.2								12	25	0
345.3								21	0	0
346.0	0	41	0	26	18	0	0	0	0	0
347.0	0	21	0	13	0	0	0	0	17	0
348.0	0	27	0	31	28	33	0	33	43	53
349.0	44	28	51	26	24	20	16	24	36	37
349.1						7	16	0	0	0
350.0	0	20	27	18	9	25	4	5	0	0
351.0	2	0	0	0	0	0	0	0	18	6
352.0	85	123	183	105	107	120	138	106	151	120
352.1		1		0	0	0	29	0	39	31
352.2						20	24	14	26	12
353.0	23	11	55	22	0	39	17	0	0	42
354.0	0	34	30	44	29	30	46	46	46	34
355.0	0	0	9	4	2	4	0	1	0	20
355.1						4	0	0	0	0
355.5										32
356.0	46	0	67	0	0	0	0	0	0	0
356.1					100	40	92	25	0	27
357.0	0	0	0	0	0	14	0	6	11	3
358.0	25	0	13	0	0	0	0	0	0	0
359.0	5	0	0	0	0	14	4	1	0	0
359.1						1	0	0	0	0
360.0	58	0	0	0	0	0	44	0	0	0
361.0	97	186	0	0	0	0	0	0	0	0
362.0	21	78	7	0	0	0	0	239	0	0
363.0	354	279	583	333	784	460	401	510	627	387
364.0	0	12	13	0	1	0	0	0	13	0
365.0	0	0	52	0	0	0	0	24	154	50
366.0	0	240	16	0	0	40	0	11	4	0
366.1				86	0	1	142	0	0	0
367.0	0	0	10	0	0	1	0	0	0	0
367.1							21	0	7	26
367.2								23	8	0
368.0	43	14	0	0	0	1	0	0	0	0
368.1						33	0	13	22	0
369.0	11	8	0	0	1	13	0	0	0	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88	89
369.1						1	0	0	0	0
370.0	0	0	0	0	0	3	0	0	0	0
371.0	25	19	14	0	0	0	9	11	9	0
372.0	3	0	0	0	0	0	0	0	0	0
372.1								9	16	0
373.0	101	104	172	117	138	159	133	206	146	0
373.1		34		0	0	26	0	0	26	0
374.0	29	0	76	0	0	32	23	0	43	0
375.0	10	0	1	4	0	0	0	0	0	0
376.0	1	0	0	0	0	0	4	0	0	0
377.0	4	0	0	0	0	0	0	0	0	0
378.0	5	1	0	0	0	2	0	0	0	0
378.1		2		0	0	0	0	0	0	0
379.0	1	2	0	0	3	0	0	4	0	0
380.0	15	0	0	0	0	0	0	0	0	0
380.1						4	0	0	0	0
380.2							2	0	0	0
381.0	32	39	46	46	16	42	0	55	73	0
381.1		282		0	410	441	0	0	0	0
381.2					81	0	0	0	0	0
381.3						15	0	0	0	0
382.0	325	192	483	423	0	0	354	452	1060	533
383.0	329	492	170	457	464	426	281	830	316	305
384.0	518	1	269	7	12	5	15	14	22	20
385.0	146	117	131	96	55	148	76	144	88	93
386.0	0	0	0	0	9	0	0	0	0	0
386.1						1	0	0	0	0
387.0	0	0	0	0	0	0	0	0	0	0
388.0	0	0	0	0	0	0	0	0	0	20
389.0	0	0	0	0	0	0	0	0	0	17
390.0	0	0	21	48	57	24	55	14	35	18
390.1						14	0	0	0	0
391.0	0	0	0	0	0	0	0	0	0	8
392.0	0	0	0	0	0	0	10	13	0	17
393.0	20	0	0	21	0	40	22	0	18	1
394.0	0	22	0	0	0	7	3	0	0	29
395.0	18	10	0	32	21	23	20	36	37	42
395.1							1	0	0	0
396.0	0	0	0	0	4	11	8	4	0	0
396.1						16	0	0	0	0
397.0	0	0	2	12	8	7	9	0	0	0
398.1							0	0	0	0
398.0	0	2	0	0	0	43	6	0	0	0
399.0	10	9	15	46	49	67	24	0	0	55
399.1										25
400.0	0	58	0	0	0	0	53	38	0	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88	89
401.0	0	0	0	0	3	6	1	0	0	0
402.0	0	0	0	0	0	0	0	2	0	0
403.0	0	0	0	0	0	3	0	0	0	0
404.0	0	0	0	79	28	13	3	14	0	0
405.0	56	8	0	7	9	14	13	0	0	15
405.05									3	0
405.1							1	0	0	0
406.0	0	0	0	0	0	0	0	0	0	0
407.0	0	0	0	0	0	0	0	0	0	0
407.1							13	9	0	5
408.0	0	0	0	0	0	0	1	0	0	0
409.0	0	0	0	0	0	20	61	209	42	0
410.0	0	0	48	0	10	28	30	0	0	0
411.0	0	0	0	0	0	0	0	0	0	0
412.0	0	0	35	0	0	0	6	0	0	0
413.0	66	24	52	33	5	96	72	0	48	0
413.1		1		0	0	0	0	0	0	0
414.0	263	215	0	363	328	379	516	386	186	440
415.0	63	0	0	0	0	0	2	5	33	8
416.0	0	0	0	0	0	8	0	0	0	0
417.0	0	0	0	0	0	0	1	0	0	0
418.0	208	109	129	542	139	328	266	278	176	304
419.0	0		0	0	0	1	0	0	0	0
420.0	0		0	0	9	10	23	0	20	37
421.0	0	0	0	0	0	0	0	0	0	0
422.0	51	69	54	56	41	32	42	25	40	42

APPENDIX III. Harbor seal hauling sites with site descriptions as available. (SITE= site number; LOCATION= name of site; COUNTY= county of site; LAT/LONG= exact location of site; SUBST= primary type of substrate [1= extended reef, 2= offshore rock, 3= onshore rock, 4= harbor or estuary, 5= ocean sandy beach, 6= river log, 7= floats, 8= night haul out, 9= ocean rocky beach]; MAX= maximum number counted at site; ?= some question as to location; blanks indicate data not available).

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	MAX
000.1	?km N. Pt. Loma	SD	32 .	117 .	2	7
001.0	1.2km S. Pt. La Jolla	SD	3250.56	11716.90	1	0
002.0	.6km S.Pt.LaJolla-Childrens Cv	SD	3250.87	11716.68	1	10
003.0	0.5km S. Pt. La Jolla	SD	3250.90	11716.62	2	25
004.0	Mugu Lagoon	V	3406.11	11904.17	4	139
005.0	.1km E.Std. Oil P. Carpinteria	SB	3423.11	11930.33	5	116
006.0	.3km W.Std. Oil P. Carpinteria	SB	3423.13	11930.47	2	70
007.0	Carpinteria St. Beach	SB	3423.36	11931.09	1	53
008.0	Sand Pt.	SB	3423.60	11932.30	2	11
009.0	Moore Mesa 2km E. Goleta River	SB	3425.34	11947.82	2	70
010.0	1.2km W. Ellwood Oil Pier	SB	3426.38	11956.24	5	205
010.1	N. Ellwood	SB	3427.38	12028.03	2	1
010.8	Gov't Pt.	SB	3427.	12028.	1	3
011.0	0.8km E. Pt. Conception	SB	3426.53	12027.50	5	554
011.1	Lighthouse	SB	3426.08	12027.76	5	213
012.0	N. Pt. Conception	SB	3427.36	12028.01	2	38
013.0	N. Pt. Conception	SB	3429.	12028.	1	19
013.1	1km S. Sudden	SB	3431.70	12034.79	2	15
014.0	Sudden	SB	3432.	12034.	3	13
014.1	Sudden/Rocky Pt.	SB	3433.34	12036.37	5	263
014.2	S of Rocky Point	SB	3433.42	12037.32	1	122
014.4	1.2km S. Rocky Pt.	SB	3433.47	12037.30	5	290
014.8	0.75km S. Rocky Pt.	SB	3433.50	12037.49	5	98
015.0	1.0 Km S. Rocky Pt.	SB	3433.52	12037.59	3	247
015.1	0.5 km S. of Rocky Pt.	SB	3433.68	12037.59	3	228
015.2	0.3km S Rocky Pt.	SB	3433.	12037.	1	119
016.0	1.0 Km S. Rocky Pt.	SB	3433.81	12037.72	3	239
017.0	S. Pt. Arguello	SB	3434.	12038.	1	57
017.1	S. Pt Arguello	SB	34	120	3	18
018.0	S. Purisima Pt.	SB	3444.	12037.	3	127
019.0	S. Purisima Pt.	SB	3444.63	12037.24	1	100
019.1	S. Purisima Pt.	SB	3444.77	12037.64	2	53
019.2	S. of Purisima Pt.	SB	3445.13	12037.67	2	13

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	MAX
020.0	Purisima Pt.	SB	3445.35	12038.20	1	43
021.0	Pt. Sal Area	SB	3452.05	12036.82	3	19
021.1	Pt. Sal Area	SB	3554.	12040.	3	10
021.2	Pt Sal Area	SB	3554.	12040.	3	26
021.3	Pt. Sal Area	SB	3554.	120 .	1	2
021.5	Pt. Sal Area	SB	3554.19	12039.85	1	8
022.0	N. Pt. Sal	SB	3554.31	12040.01	3	67
023.0	Mussel Pt.	SB	3455.76	12040.04	1	13
023.1	?km N. Pismo Beach Pier	SLO	3508.90	12038.90	3	34
024.0	1.7 km N. Pismo Beach P.	SLO	3509.10	12039.83	2	58
025.0	Shell Beach (O.R. N. Br. Is.)	SLO	3509.14	12039.86	2	138
026.0	0.1kmN. of site #25-O.R.at lt.	SLO	3509.15	12040.	1	51
026.1	E. Mallagh Landing	SLO	3110.	12042.	1	22
027.0	Pirates Cove (Mallagh Landing)	SLO	3511.07	12042.86	2	29
028.0	Fossil Pt.	SLO	3510.61	12042.45	2	20
029.0	0.8km S. Pecho Rock	SLO	3510.	12049.	1	2
030.0	Pecho Rock	SLO	3510.75	12048.95	2	2
031.0	Deer Canyon (Outside S)	SLO	3511.32	12048.37	1	67
031.1	Vic. Deer Canyon	SLO	3510.74	12046.06	1	45
032.0	Deer Canyon (Inside Cove)	SLO	3511.29	12048.74	1	4
032.1	Red Tail Reef	SLO	3511.	1204 .	1	93
033.0	0.9km N. Deer Canyon	SLO	3511.15	12047.97	1	22
033.1	0.95km N. Deer Canyon	SLO	3511.55	12049.27	3	16
033.2	? km N. Deer Canyon	SLO	3511.41	12049.89	1	56
034.0	1.0km N. Deer Canyon	SLO	3511.56	12049.28	3	38
034.1	.1?km N. Deer Canyon	SLO	3511.	12049.	2	38
035.0	1.2km N. Deer Canyon	SLO	3511.58	12049.26	2	59
035.1	1.3km N. Deer Canyon	SLO	3511.68	12049.50	1	3
036.0	1.5km N. Deer Canyon	SLO	3511.73	12049.60	1	42
037.0	2.0km N. Deer Canyon	SLO	3511.81	12049.87	1	61
038.0	2.1km N. Deer Canyon	SLO	3511.80	12049.99	1	68
039.0	2.4km N. D.C.--Green Peak Cove	SLO	3511.90	12050.11	1	199
039.05	N of China Shack	SLO	3512.01	12050.37	1	15
039.1	N. China Shack	SLO	3512.09	12050.42	1	9
040.0	0.4km S. Diablo Cyn Har.	SLO	3512.	12052.	2	126
040.1	? Km N. Diablo Nuclear Fac.	SLO	3512.	12052.	2	1
041.0	0.6km N. Lion Rock	SLO	3513.44	12052.56	2	65
041.1	?km N. Lion Rock--Barn Road	SLO	3513.	12052.34	5	116
041.2	?km N. Lion Rock	SLO	3513.81	12052.48	1	73
042.0	1.8km N. Lion Rock (opp.Res.)	SLO	3513.94	12052.66	1	36
042.1	?km N. Lion Rock	SLO	3514.28	12053.05	3	44
043.0	2.3km N. Lion Rock	SLO	3514.15	12053.04	2	21
043.1	1.0km N. Pt. Buchon	SLO	3515.00	12053.58	5	13

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	MAX
044.0	0.8km S. Islay Creek	SLO	3516.	12053.	2	24
045.0	0.5km S. Hazard Cyn.	SLO	3517.34	12053.82	1	22
046.0	Morro Bay (Inside Harbor)	SLO	3520.39	12050.59	4	41
046.1	? Km N. Whale Rock	SLO	3520.30	12051.10	2	1
047.0	0.2km W. Cayucos Pier	SLO	3526.91	12054.44	2	13
048.0	1.0km W. Cayucos Pier	SLO	3526.84	12054.59	1	22
049.0	1.3km W. Cayucos Pier	SLO	3526.87	12055.25	1	95
050.0	0.1km W. Black Rock	SLO	3526.87	12055.50	1	86
051.0	0.9km E. Cayucos Pt.	SLO	3526.81	12055.80	1	62
052.0	0.2km E. Cayucos Pt.	SLO	3526.79	12056.22	1	126
053.0	Cayucos Pt.	SLO	3526.76	12056.37	1	197
054.0	0.2km W. Cayucos Pt.	SLO	3526.77	12056.47	1	96
055.0	0.4km W. Cayucos Pt.	SLO	3526.76	12056.66	1	130
055.1	? km W. Cayucos Pt.	SLO	3526.73	12056.36	1	75
055.2	W. of Cayucos Point	SLO	3526.76	12056.22	1	20
055.3	S of Cayucos Point	SLO	3526.	12056.	2	1
055.5	S of Cayucos Point	SLO	3526.80	12056.40	2	13
056.0	2.1km NW Cayucos Pt.	SLO	3527.76	12057.66	1	50
056.1	?km NW Cayucos Pt.	SLO	3527.	12057.	1	39
056.2	?km NW Cayucos Pt.	SLO	3526.92	12056.76		33
057.0	0.4km SE Villa Creek	SLO	3527.	12058.	1	46
057.1	? km W. Villa Cr.	SLO	3527.	12100.	1	30
057.2	? Km W. Villa Cr.	SLO	3527.	12100.	3	14
058.0	Point Estero	SLO	3527.	12100.	1	67
058.1	Pt. Estero area	SLO	3527.	12100.	1	51
058.5	S. China Shack	SLO	3528.40	12100.60	1	18
058.7	S of China Shack	SLO	3528.67	12100.89	1	21
058.9	S of China Shack	SLO	3528.67	12100.89	1	43
059.0	0.4km S. China Shack	SLO	3529.00	12101.03	1	23
060.0	0.3km S. China Shack	SLO	3528.87	12101.39	1	11
061.0	0.1km S. China Shack	SLO	3529.21	12101.56	2	23
061.8	China Shack	SLO	352 .	12101.	3	7
062.0	0.1km N. China Shack	SLO	3529.06	12101.44	1	17
063.0	0.4km N. China Shack	SLO	3529.06	12101.58	1	19
064.0	0.5km N. China Shack	SLO	3529.08	12101.65	1	27
064.5	0.6 km N. China Shack	SLO	35 .	121 .	2	2
065.0	0.7km N. China Shack	SLO	3529.18	12101.71	1	43
065.1	? km n. China Shack	SLO	3529.	12103	1	1
065.2	? km N. China Shack	SLO	3529.42	12101.66	2	51
066.0	1.9km S. Radar Station	SLO	3530.33	12103.05	1	51
066.1	?km S. Radar Station	SLO	3530.50	12103.00	3	45
066.2	?km S. Radar Station	SLO	3530.	12103.	3	1
067.0	0.4km S. Radar Station	SLO	3530.89	12103.82	2	65

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	MAX
068.0	1.2km N. Radar Station	SLO	3531.	12104.	1	15
068.1	Vicinity White Rk.	SLO	3531.83	12104.65	1	15
068.15	Vicinity White Rock	SLO	3531.	12104.	1	21
068.2	Vicinity White Park	SLO	3531.	12104.	1	42
068.25	1.5 Miles N White Rock	SLO	3531.	12104.	1	43
068.3	S. of Vicinity White Pt	SLO	3531.	12104.	2	1
069.0	Castle Inn,Cambria-Opp.C. Rock	SLO	3534.67	12106.80	2	15
069.1	?	SLO	3535.67	12106.80	2	15
070.0	0.9km N. San Simeon Cr.	SLO	3536.05	12107.86	1	28
070.1	?km N. San Simeon Cr.	SLO	3536.11	12108.58	1	15
071.0	1.3km N. San Simeon Cr.	SLO	3536.14	12108.07	1	102
071.1	N. San Simeon Cr	SLO	3536.18	12108.11	2	2
072.0	1.6km N. San Simeon Cr.	SLO	3536.22	12108.43	1	68
073.0	1.8km N. San Simeon Cr.	SLO	3536.29	12108.58	1	13
073.1	Pico Creek Cove	SLO	3537.04	12109.01	2	22
074.0	.6km E. San Simeon Pier	SLO	3538.47	12110.80	2	68
074.1	W San Simeon Pt	SLO	3538.39	12110.75	1	2
075.0	1.3km W. San Simeon Pt.	SLO	3538.40	12111.71	1	69
075.1	?W Adobe Creek	SLO	3539.11	12113.22	1	2
076.0	.4km W. Adobe Creek	SLO	3539.15	12113.22	1	102
076.1	?km W. Adobe Creek	SLO	3539.20	12113.79	2	40
077.0	1.6km W. Adobe Creek	SLO	3539.30	12114.29	1	17
077.1	?km W. Adobe Creek	SLO	3539.15	12114.45	1	23
078.0	1.8km W. Adobe Creek	SLO	3539.24	12114.19	2	104
079.0	2.0km W. Adobe Creek	SLO	3539.65	12114.91	1	64
079.1	E. Piedras Blancas Lthouse	SLO	3539.	12115.	2	4
080.0	2.7km E Piedra Blancas Lthouse	SLO	3539.57	12115.23	1	33
080.1	? km E. Piedras Blancas	SLO	3539.94	12116.81	1	16
081.0	2.3km E Piedra Blancas Lthouse	SLO	3539.75	12115.48	2	18
081.1	? km E. Piedras Blancas	SLO	3539.	12115.	1	8
081.2	? km E. Piedras Blancas	SLO	3539.	12115.	1	20
081.3	Pt. Piedras Blancas	SLO	3539.94	12116.81	1	21
082.0	Offshore Pt. Piedras Blancas	SLO	3539.76	12116.62	2	70
083.0	Beach at Pt. Piedras Blancas	SLO	3539.86	12116.56	1	58
084.0	Harleck Castle Rock Area	SLO	3542.56	12112.40	1	14
085.0	La Cruz Rock	SLO	3542.34	12118.27	2	122
086.0	0.3km S. Pt. Sierra Nevada	SLO	3542.68	12118.82	2	68
086.8	2 km S. Breaker Pt.	SLO	3543.90	12118.60	1	1
087.0	0.9km S. Breaker Pt.	SLO	3544.28	12118.72	2	138
087.1	N. Breaker Pt.	SLO	3544.15	12119.07	1	1
088.0	N. Ragged Pt.	SLO	3546.	12119.	1	5
089.0	N. Ragged Pt.	SLO	3547.	12120.	2	20
090.0	1.0km S. Salmon Creek	M	3548.	12121.	2	15

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	MAX
091.0	1.6km S. Salmon Creek	M	3548.30	12121.28	1	13
091.1	Salmon Creek area	M	3548.	12121.	2	21
092.0	0.3km S. Salmon Creek	M	3548.36	12121.59	2	12
093.0	0.5km N. Salmon Creek	M	3548.58	12121.86	2	6
093.1	?km S. Redwood Gulch	M	3549.08	12122.77	2	18
093.3	2.5 mi. S. Redwood Gulch	M	3549.84	12123.39	2	1
094.0	Redwood Gulch	M	3550.02	12123.74	2	2
094.1	Vicinity Redwood Gulch	M	3550.	12123.	2	10
094.2	Vicinity Redwood Gulch	M	3550.10	12123.60	2	5
094.3	?km SE Alder Creek	M	3551.	12124.	2	1
094.4	S of Alder Creek	M	3551.	12124.	2	6
094.5	S of Alder Creek	M	3551.	12124	2	1
095.0	0.3km S. Alder Creek	M	3551.37	12124.86	2	15
096.0	0.8km N. Alder Creek	M	3551.49	12125.01	2	19
096.1	?km N. Alder Creek	M	3551.70	12125.70	2	14
096.2	?km N. Alder Creek	M	3551.	12125.	2	2
096.3	?km N. Alder Creek	M	3551.	12125.	2	1
096.4	?km N. Alder Creek	M	3551.	12125.	2	3
097.0	1.3km N. Alder Creek	M	3551.75	12125.88	2	23
098.0	Bird Rock (Gorda Rock)	M	3552.38	12127.04	2	59
099.0	0.6km S. Cape San Martin	M	3553.08	12127.59	5	5
099.1	Vicinity Cape San Martin	M	3552.75	12121.06	2	7
099.2	Vicinity Cape San Martin	M	3552.84	12127.25	2	6
099.5	N of White Bridge	M	3553.89	12027.91	2	3
100.0	1.5km S. Plaskett Rock	M	3554.59	12128.04	2	9
101.0	0.7km S. Prewitt Creek	M	3555.69	12128.29	2	25
102.0	0.4km S. Prewitt Creek	M	3555.69	12128.29	2	44
102.1	S.Prewitt Creek	M	3556.	12128.	2	2
103.0	0.7km N. Prewitt Creek	M	3556.47	12128.64	2	1
103.8	?km S. Wild Cattle Creek	M	3557.	12129.	2	9
104.0	0.1km S. Wild Cattle Cr.	M	3557.43	12129.02	2	11
104.1	S Wild Cattle Cr	M	3557.	12129.	2	3
104.2	E of Wild Cattle Cir	M	3558.	12130	2	1
104.3	N of Wild Cattle Cr	M	3559.	1213 .	2	1
104.5	1.5 mi S. Rockland Landing	M	3620.30	12130.84	3	11
105.0	1.0km E. Lopez Point	M	3600.87	12132.88	2	6
105.1	E of Lopez Point	M	3600.	12132.	2	5
106.0	0.1km E. Lopez Point	M	3601.15	12133.96	2	1
106.1	?S Lopez Point	M	3601.	1213 .	2	1
107.0	0.1km W. Lopez Point	M	3601.19	12134.03	1	34
107.1	W Lopez Point	M	3601.	12134.	2	5
108.0	0.7km S. Vicente Creek	M	3602.30	12134.84	2	15
109.0	Vicente Creek	M	3602.68	12135.10	2	10

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	MAX
110.0	.6km N. Big Creek	M	3604.35	12136.35	5	208
111.0	1.0km S. Dolan Rock	M	3604.66	12136.62	2	98
112.0	0.6km S. Dolan Rock	M	3604.75	12136.87	2	43
113.0	Dolan Rock	M	3605.	12137.	2	37
114.0	0.2km N. Rat Creek	M	3605.61	12137.23	2	71
114.1	Rat Creek Area	M	3605.	12137.	2	3
114.2	?km N. Rat Creek	M	3605.	12137.	3	8
114.3	N Rat Creek	M	3605.	12137.	2	3
114.4	S of Lime Creek	M	3605.	12137.	2	9
114.5	Lime Creek	M	3606.	12138.	2	6
115.0	0.3km S. Lime Creek	M	3607.10	12137.94	2	46
116.0	0.4km S. Anderson Canyon	M	3608.72	12139.87	2	6
117.0	N. Anderson Canyon	M	3609.	12140.	2	29
118.0	0.1km S. McWay Rocks	M	3609.80	12140.62	2	13
118.1	S. McWay Rocks	M	3609.	12140.	2	4
118.5	S of Seaview Shoals	M	3529.68	12040.87	2	3
119.0	McWay Rocks	M	3609.80	12140.67	2	9
119.1	Vicinity Mcway Rks.	M	3609.	12140.	1	12
120.0	0.3km N. McWay Rocks	M	3609.95	12140.77	2	2
121.0	1.2km S. Partington	M	3609.91	12141.20	2	3
122.0	0.6km S. Partington Creek	M	3610.11	12141.56	2	18
123.0	0.8km S. Torre Canyon	M	3611.24	12142.46	2	4
124.0	La Fler Canyon	M	3611.98	12143.70	2	1
125.0	0.1km N. La Fler Canyon	M	3611.82	12143.64	2	13
126.0	0.8km N. La Fler Canyon	M	3612.	12144.	3	11
126.5	Grimes Point	M	3612.16	12144.41	2	13
127.0	2.7km S. Pfeiffer Point	M	3613.28	12146.55	1	118
128.0	Cooper Point	M	3614.	12150.	2	1
129.0	2.4km N. Cooper Point	M	3615.75	12150.72	2	54
130.0	1.7km N. Big Sur River	M	3617.15	12152.56	1	266
130.1	Pt. Sur Lighthouse	M	3617.41	12153.78	1	30
131.0	1.6km S. Pt. Sur Lthouse	M	3617.96	12153.24	2	71
131.1	1.0km S. Pt. Sur Lthouse	M	3617.	12153.	1	56
131.2	1.0km S. Pt. Sur Lthouse	M	3617.	12153.	2	14
131.3	?km S. Pt. Sur Lighthouse	M	3617.	12153.	2	64
132.0	1.2km S. Pt. Big Sur Lthouse	M	3618.11	12153.51	1	107
132.1	S. Big Sur Lighthouse	M	3618.	12153.	1	8
133.0	1.1km S. Pt. Big Sur Lthouse	M	3618.17	12153.35	2	159
134.0	? km S. Hurricane Pt.	M	3621.10	12154.09	1	12
134.1	? km S Hurricane Pt.	M	3621.	12154.	2	4
134.2	? km S Hurricane Pt.	M	3621.	12154.47	2	10
134.5	S of Hurricane Point	M	3621.	12154.	3	10
135.0	Castle Rk. (Bixby Ldg.)	M	3622.44	12154.35	5	38

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	MAX
136.0	0.5km N. Palo Colorado Canyon	M	3624.14	12154.70	2	10
137.0	0.8km S. Soberanes Point	M	3626.59	12155.43	2	5
137.1	Soberanes Pt. Area	M	3626.	121 .	1	2
138.0	Soberanes Point	M	3626.59	12155.43	2	26
138.1		M	3627.	12155.	2	2
139.0	0.9km S. Malpaso Creek	M	3628.37	12156.25	2	14
139.1	S. Malpaso Creek	M	3628.66	12156.32	3	14
140.0	Yankee Point Cove	M	3629.29	12156.62	2	19
140.1	Yankee Point	M	3628.66	12156.32	1	1
141.0	Yankee Point	M	3628.66	12156.32	3	78
141.1	Yankee Point	M	3629.	12156.	3	24
142.0	Bird Island (Pelican Point)	M	3630.56	12156.51	2	31
143.0	0.3km N. Bird Island	M	3630.40	12156.63	2	8
143.5	Devil's Cauldron	M	3631.08	12156.92	2	2
144.0	Headland Cove	M	3631.21	12156.97	3	28
144.5	Granite Point	M	3631.	12156.	3	10
145.0	Whalers Cove	M	3631.20	12156.14	2	35
146.0	The Pit, Whalers Cove	M	3631.42	12156.02	2	72
147.0	Moss Cove (Pt. Lobos Reserve)	M	3631.35	12156.04	2	48
148.0	Arrowhead Point (Outside)	M	3632.48	12155.94	1	70
149.0	Arrowhead Point (Inside)	M	3631.34	12156.74	1	71
150.0	Pescadero Rocks	M	3633.70	12156.62	1	97
151.0	.5kmN.Pescadero Pt.-Stwtr.Cove	M	3633.92	12156.97	2	80
152.0	Cypress Pt. Parking Lot South	M	3634.58	12158.36	2	85
153.0	0.1km S. Cypress Point	M	3634.75	12158.60	2	93
154.0	Cypress Point	M	3634.82	12158.62	1	74
154.1	Cypress Point	M	3634.	12158.	3	2
155.0	0.1km N. Cypress Point	M	3634.83	12158.52	1	65
155.1	?km N Cypress Point	M	3635.00	12157.44	2	63
156.0	0.4km N. Cypress Point	M	3634.92	12158.60	2	61
156.1	Near Fan Shell Beach	M	3635.	12157.	1	54
157.0	Seal Rock	M	3635.30	12157.90	2	175
157.1	N of Seal Rock	M	3635.57	12158.20	2	1
158.0	1.3km N. Seal Rock (Ocean Av.)	M	3635.97	12157.76	1	18
159.0	0.2km S. Point Joe	M	3637.55	12156.44	1	9
160.0	Asilomar (Arena Av.)	M	3637.60	12156.47	1	45
160.05	S Asilomar Arena Av	M	3637.60	12156.47	2	3
160.1	Asilomar (Arena Ave)	M	3637.89	12155.28	1	9
161.0	.5km W Lovers Pt.(Pacific Av.)	M	3637.70	12155.17	2	50
161.1	?km SE Lovers Pt.	M	3637.69	12155.18	2	32
161.2	?km SE Lovers Pt.	M	3637.50	12154.89	2	6
162.0	Hopkins Marine Station	M	3637.28	12154.14	1	149
162.1	Cannery Row Rock	M	3637.	12154.	2	1

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	MAX
162.2	Aquarium	M			2	9
163.0	Monterey Harbor (2km S Brwtr.)	M	3636.42	12153.60	2	7
164.0	Elkhorn Slough(1.6km E. Hwy 1)	M	3648.92	12146.11	4	92
164.7	Cement Ship N. Rio Del Mar	M	3657.80	12154.80	2	41
165.0	Soquel Pt.	SC	3657.20	12158.60	2	89
166.0	2.0km N. Terrance Pt.	SC	3657.04	12205.30	3	176
167.0	Table Rock	SC	3657.80	12208.10	1	169
167.8	N. Yellow Bank Creek	SC	3639.30	12210.50	2	1
168.0	1.2km N. Yellow Bank Creek	SC	3659.	12210.	2	29
169.0	Davenport Cement Plant.5km N.P	SC	3700.52	12212.26	3	40
170.0	El Jarro Pt.	SC	3701.50	12213.70	1	1
170.1	N El Jarro Pt.	SC	3701.24	12213.35	3	1
171.0	N. Scott Creek	SC	3703.30	12214.21	1	33
172.0	2.6km S. Greyhound Rock	SC	3703.35	12215.21		145
173.0	1.7km S. Greyhound Rock	SC	3703.93	12215.27	1	53
174.0	1.3km S. Greyhound Rock	SC	3704.04	12215.42	3	139
175.0	1.0km N. Greyhound Rock	SC	3704.97	12216.42	2	81
175.5	? km. N Greyhound Rock	SC	37	122	1	1
176.0	Ano Nuevo Pt.	SM	3706.58	12219.75	1	31
177.0	Ano Nuevo Isl.	SM	3706.55	12220.58	2	124
178.0	0.7km N. Ano Nuevo Pt.	SM	3706.98	12220.12	1	116
179.0	1.1km N. Ano Nuevo Pt.	SM	3707.11	12220.29	1	59
180.0	1.3km N. Ano Nuevo Pt.	SM	3707.18	12220.58	2	44
181.0	1.8km S. Franklin Pt.	SM	3708.30	12220.85	2	17
182.0	Franklin Pt.	SM	3708.93	12221.77	2	26
182.1	Vicinity Franklin Pt.	SM	3708.	12221.	1	3
182.2	N. Vicinity Franklin Pt.	SM	3709.93	12221.77	2	4
182.7	N. Franklin Pt.	SM	3710.20	12222.00	1	1
183.0	3.4km N. Franklin Pt.	SM	3710.66	12222.45	1	4
184.0	1.4km S. Pigeon Pt.	SM	3710.71	12223.16	2	1
185.0	0.4km S. Pigeon Pt.	SM	3710.93	12223.31	2	43
186.0	1.4km N. Pigeon Pt.	SM	3711.60	12224.01	1	12
186.1	N. Pigeon Pt.	SM	3711.	12224.	2	1
187.0	1.7km N. Pigeon Pt.	SM	3711.67	12224.16	2	8
187.7	.75 mile N Bolsa Point	SM	3711.71	12224.30	2	1
188.0	N. Bolsa Pt	SM	3712.71	12224.43	1	185
189.0	0.5km N. Bean Hollow	SM	3713.81	12224.83	2	11
190.0	0.8km N. Bean Hollow	SM	3713.96	12224.91	1	105
191.0	1.0km N. Bean Hollow	SM	3714.11	12225.00	2	21
191.1	Pescadero Pt.	SM	3714.47	12225.14	1	6
192.0	0.2km N. Pescadero Pt.	SM	3714.74	12225.16	2	34
193.0	0.3km N. Pescadero Pt.	SM	3714.87	12225.13	2	24
193.1	?km N Pescadero Pt.	SM	3714.	12225.	1	5

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	MAX
194.0	Butano Creek Mouth	SM	3716.02	12224.82	2	54
194.1	?km N. Martins Beach	SM	3716.02	12224.	2	1
195.0	Eel Rock	SM	3724.48	12225.66	2	144
195.1	N. Eel Rock	SM	3724.80	12225.90	1	146
196.0	Miramontes Pt.	SM	3726.48	12226.66	2	47
196.1	6km N. Miramontes Pt.	SM	3726.95	12226.	2	33
197.0	Sail Rock, Pillar Pt.	SM	3729.49	12229.98	2	122
197.1	Sail Rock, Pillar Pt.	SM	3730.16	12230.15	1	100
198.0	1.0km N. Pillar Pt.	SM	3730.21	12230.22	2	125
198.1	N. Pillar Pt.	SM	3730.	12230.	2	25
199.0	1.5km N. Pillar Pt.	SM	3730.27	12230.27	1	131
199.5	0.5 mi S. Seal Cove	SM	3730.	12230.	2	24
200.0	Moss Beach (Seal Cove)	SM	3730.54	12230.83	1	58
200.1	?km S. Seal Cove	SM	3730.	12230.	2	24
201.0	Moss Beach (N. Seal Cove)	SM	3730.99	12230.94	2	68
201.1	?km S. Pt. San Pedro	SM	3735.	12231.	2	3
202.0	San Pedro Rock (South Side)	SM	3735.69	12231.22	3	58
202.1	Mussel Rock	SM	3739.00	12230.00	2	1
203.0	Gaudalupe Slough	SCL	3726.70	12202.14	4	67
204.0	Calaveras Pt.	ALA	3728.02	12202.99	4	14
205.0	Mowry Slough	ALA	3729.32	12201.98	4	328
206.0	Plummer Creek	ALA	3730.48	12205.2	4	53
207.0	Greco Island	SM	3731.05	12210.78	4	74
208.0	Corkscrew Slough	SM	3738.79	12212.88	4	17
209.0	Yerba Buena Island	SF	3748.43	12221.71	2	65
210.0	0.4km W. Blunt Pt.,Angel Isl.	MAR	3806.98	12226.69	2	18
210.8	Lighthouse Blunt Pt Rock	SF	3751.39	12025.16	2	13
211.0	Sausalito Small Craft Harbor	MAR	3752.30	12229.69	7	30
212.0	Strawberry Spit	MAR	3753.27	12229.89	1	97
212.5	3 km. N. California Point	MAR	3755.94	12230.02	5	8
213.0	Castro Rocks	CC	3756.00	12224.99	2	123
214.0	Tubbs Island	SON	3806.98	12226.69	4	34
215.0	Pt. Bonito (.6km N. on inside)	MAR	3749.29	12231.47	2	55
215.1	Pt. Bonita	MAR	3749.33	12231.	2	1
216.0	0.4km N. Tennessee Cove	MAR	3750.63	12233.30	2	5
216.1	Muir Beach	MAR	375 .	1223 .		1
217.0	Bolinas Lagoon	MAR	3754.82	12240.2	4	182
217.1	Bolinas Lagoon	MAR	3753.24	12241.81	5	65
218.0	Duxbury Reef	MAR	3753.29	12241.88	1	193
218.1	West end Duxberry Reef	MAR	3753.	12241.	1	24
219.0	Bolinas Pt.	MAR	3754.03	12243.51	1	25
219.1	Vicinity Bolinas Pt.	MAR	3754.74	12243.75	1	1
219.2	Vicinity Bolinas Pt.	MAR	3754.	12243.	1	1

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	MAX
219.3	Vicinity Bolinas Pt.	MAR	3754	12243.	1	4
220.0	Rocks at S. Edge Double Pt.	MAR	3756.58	12246.54	1	93
221.0	Double Pt. Beach	MAR	3756.50	12246.61	5	831
222.0	Beach .4km N. Double Pt.	MAR	3756.90	12247.69	5	11
223.0	Millers Pt.	MAR	3759.08	12248.64	2	3
224.0	Limantour Spit	MAR	3801.89	12255.34	4	509
225.0	Drakes Estero	MAR	3802.00	12255.78	4	649
226.0	1.7km W. Chimney Rock	MAR	3759.51	12258.83	2	66
226.1	?km W. Chimney Rock	MAR	3759.	12258.	5	35
226.2	?km W. Chimney Rock	MAR	3759.	12258.	2	72
226.3	?km W. Chimney Rock	MAR	3759.	12258.	2	12
227.0	1.8km W. Chimney Rock	MAR	3759.55	12259.03	2	34
228.0	1.9km W. Chimney Rock	MAR	3759.52	12259.28	2	29
229.0	2.1km W. Chimney Rock	MAR	3759.57	12259.17	2	6
230.0	2.5km W. Chimney Rock	MAR	3759.52	12259.62	2	124
231.0	2.7km W. Chimney Rock	MAR	3759.51	12259.79	5	245
232.0	3.6km W. Chimney Rock	MAR	3759.50	12300.02	5	90
232.1	?km W. Chimney Rock	MAR	3759.50	12300.02	5	28
232.2	?km W. Chimney Rock	MAR	3759.03	12300.03	5	70
232.3	?Km W. Chimney Rock	MAR	3759.55	12300.03	5	17
233.0	3.7km W. Chimney Rock	MAR	3759.57	12300.51	1	31
234.0	4.2km W. Chimney Rock-S.Lion C	MAR	3759.70	12300.58	2	13
235.0	4.3km W. Chimney Rock-S.Lion C	MAR	3759.70	12300.67	2	17
236.0	1.4km S. Elephant Rock	MAR	3810.23	12257.22	1	19
237.0	0.6km S. Elephant Rock	MAR	3810.69	12257.50	1	1
238.0	0.2km E. Elephant Rock	MAR	3810.80	12257.80	2	20
239.0	N. End Driftwood Beach	MAR	3812.36	12358.61	2	46
240.0	3.2km S. Bird Island	MAR	3813.30	12258.29	2	10
240.1	?km S. Bird Island	MAR	3818.	12258.	2	3
241.0	2.9km S. Bird Island	MAR	3812.50	12258.42	5	135
242.0	1.7km S. Bird Island	MAR	3813.05	12258.88	2	2
242.1	Bird Island	MAR	3813.	12258.	2	1
243.0	0.7km SE Bird Island	MAR	3713.43	12359.39	5	111
244.0	0.6km SE Bird Island	MAR	3813.67	12259.20	1	234
244.1	?km SE Bird Island	MAR	3813.	12259.	2	1
245.0	Bird Island	MAR	3813.77	12259.57	2	419
245.1	SW Tomales Bluff	MAR	3814.	12259.	3	1
246.0	0.6km S. Tomales Bluff	MAR	3814.15	12259.84	3	17
247.0	Tomales Bluff	MAR	3814.47	12259.61	2	5
247.1	E. Side Tomales Pt.	MAR	3813.40	12258.60	2	41
248.0	.5km N. Toms Pt., Tomales Bay	MAR	3813.00	12257.26	4	431
248.1	Tomales Bay	MAR	38 .	122 .	4	72
248.5	E. Lower Pierce Ranch	MAR	3813.21	12258.37	4	30

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	MAX
249.0	Hog Island (E. Spit)	MAR	3811.83	12256.38	4	236
249.1	S.E. Hog Island	MAR	3811.60	12256.20	2	173
249.5	? km N. Dillon Beach	MAR	3817.49	12259.20	2	22
250.0	Pinnacle Rock Area	MAR	3818.	12301.	2	3
251.0	Bodega Rock	SON	3817.75	12302.82	2	115
252.0	New Bodega Head	SON	3818.16	12303.16	1	12
253.0	Mussel Pt.	SON	3819.32	12304.63	1	12
254.0	Arched Rock S. Carmet	SON	3822.20	12304.40	1	9
255.0	.7km S Duncans Pt.-Pocked Rock	SON	3823.39	12305.35	2	45
255.1	Duncans Pt.	SON	3823.	12305.	2	16
256.0	0.3km E. Duncans Pt.(Cove)	SON	3823.56	12305.61	2	8
257.0	Wrights Beach	SON	3824.11	12306.16	2	60
257.8	Furlong Gulch	SON	3824.80	12306.20	2	3
258.0	Furlong Gulch Area	SON	3825.26	12206.87	2	2
259.0	0.9km N. Shell Beach	SON	3825.28	12306.84	2	1
259.1	N. of Shell Beach	SON	3825.	12306.	2	1
260.0	1.2km N. Shell Beach	SON	3825.39	12306.90	2	2
260.1		SON	3825.	12306.	2	1
261.0	Penny Island Russian River	SON	3826.75	12306.83	6	3
261.1	Russian River	SON	3827.50	12306.	6	10
261.2	Russian River	SON	3826.30	12305.80	6	18
262.0	Russian River Spits	SON	3827.02	12307.64	4	318
263.0	1.3km N. Russian River	SON	3827.34	12308.51	2	31
263.1	?km N. Russian River	SON	3827.22	12208.37	2	21
263.2	?km N. Russian River	SON	3827.22	12308.37	2	15
264.0	1.6km N. Russian River	SON	3827.32	12208.88	2	26
264.1	1.6 km N Russian River	SON	3827.30	12308.50	2	26
265.0	2.0km N. Russian River	SON	3827.61	12308.90	2	10
265.1	?km N. Russian River	SON	3828.39	12310.	2	5
266.0	1.6km N. Russian Gulch	SON	3827.60	12310.18	2	8
267.0	1.7km N. Russian Gulch	SON	3828.59	12310.26	2	5
268.0	1.9km N. Russian Gulch	SON	3828.63	12310.32	1	37
268.1	?km N. Russian Gulch	SON	3828.	12310.	2	4
269.0	0.3km S. Meyer Gulch	SON	3828.96	12310.87	2	13
270.0	1.8km S.Fort Ross Reef	SON	3929.75	12312.46	2	9
270.1	?km S. Fort Ross Reef	SON	3929.	12312.	2	13
270.2	?km S. Fort Ross Reef	SON	3929.	12312.	2	1
271.0	0.3km S. Fort Ross Gulch	SON	3830.10	12313.59	2	28
272.0	Fort Ross Reef	SON	3830.06	12313.92	2	14
272.1	?km N. Fort Ross Reef	SON	3830.	12313.	2	1
273.0	0.2km N. Fort Ross Reef	SON	3830.23	12313.85	2	70
273.1	N. of Fort Ross Reef	SON	3830.	12313.	2	1
274.0	Fort Ross Cove	SON	3830.68	12314.63	2	36

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	MAX
274.1	N. Side Fort Ross Cove	SON	3830.	12314.	2	17
275.0	Northwest Cape (0.1km S.)	SON	3830.70	12315.17	2	37
276.0	Northwest Cape	SON	3830.72	12315.27	2	39
276.1	Northwest Cape	SON	3830.70	12315.17	2	29
277.0	0.3km N. Northwest Cape	SON	3831.87	12315.22	3	51
277.1	?km N. Northwest Cape	SON	3831.	12315.	2	3
278.0	0.9km N. Northwest Cape	SON	3831.12	12315.54	1	6
279.0	0.2km S. Windermere Pt.	SON	3831.42	12316.01	1	1
280.0	1.0km N. Windermere Pt.	SON	3831.55	12316.09	2	9
281.0	0.5km N. Timber Cove Gr.	SON	3831.84	12316.5	2	57
282.0	0.9km N. Timber Cove Gr.	SON	3832.15	12316.91	3	50
282.1	South End Stillwater Cove	SON	3832.	12317.	2	7
283.0	Stillwater Cove (inside)	SON	3832.78	12317.96	2	10
283.1	?km N. Stillwater Cove	SON	3832.80	12317.90	2	1
283.2	Gerstle Cove	SON	3833.50	12319.00	2	26
284.0	Salt Pt.	SON	3833.90	12319.98	2	29
284.1	Salt Pt. Area	SON	3833.	12319.	2	5
284.2	Salt Pt. Area	SON	38 .	12 .	2	3
284.3	Salt Pt. Area	SON	38 .	12 .	2	1
285.0	0.3km N. Salt Pt.	SON	3834.	12320.	2	57
285.1	Salt Pt. Area	SON	3834.	12320.	2	16
285.2	Salt Pt. Area	SON	3834.	12320.	1	10
285.4	Salt Point Area	SON	3834.	12320.	2	4
286.0	0.8km N. Salt Pt.	SON	3834.23	12320.26	2	6
286.1	.62 mi N Salt Point	SON	3833.88	12318.88	2	9
286.5	N. of Salt Point	SON	3834.	12320.	3	16
287.0	0.3km S. Chinese Gulch	SON	3835.21	12320.54	2	67
287.1	?km S. Chinese Gulch	SON	3835.80	12321.30	3	3
287.2		SON	3834.	12320.	2	1
287.3	Fisk Mill Cove	SON	3835.76	12320.86	2	2
288.0	.7kmN. Cannon Gulch-Fisk Mill	SON	3835.82	12321.47	2	10
289.0	0.7km S. Horseshoe Pt.	SON	3836.14	12321.94	2	17
290.0	0.7km N. Horseshoe Pt.	SON	3836.76	12322.02	2	34
291.0	0.7km N. Horseshoe Cove	SON	3836.95	12322.42	1	14
291.1	Horseshoe Cove Area	SON	3836.85	12322.42	2	1
292.0	0.5km S. Rocky Pt.	SON	3837.62	12323.15	3	1
292.1	Sandy Point	SON	3898.	12323.	1	12
293.0	Sandy Pt.	SON	3838.65	12323.98	3	18
293.5	Sandy Point	SON	3898.60	12323.80	2	43
294.0	0.7km S. Stewarts Pt.	SON	3838.98	12324.15	2	26
294.1	Stewarts Pt. Area	SON	3838.	12424.	2	5
295.0	0.2km S. Stewarts Pt.	SON	3839.19	12324.39	3	40
296.0	Stewarts Pt. Island	SON	3839.28	12324.50	3	115

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	MAX
296.1	Stewarts Point Island	SON	3839.	12324.	2	2
297.0	0.6km N. Stewarts Pt.	SON	3839.58	12324.54	2	9
297.1	Stewart's Pt. Area	SON	3839.	12324.	1	35
298.0	1.0km S. Black Pt.	SON	3840.34	12325.07	2	26
298.1	Black Pt. Area	SON	3840.56	12325.60	3	48
298.2	?km S.E. Black Pt.	SON	3840.	12325.	1	4
299.0	0.4km N. Black Pt.	SON	3840.87	12326.05	2	36
299.1	Black Pt. Area	SON	3841.60	12326.40	2	29
300.0	2.8km N. Black Pt.	SON	3842.06	12327.08	2	15
300.1	N of Black Point	SON	3842.	12327.	2	1
301.0	3.8km N. Black Pt.	SON	3842.48	12327.16	2	5
301.1	Diamond Rock	SON	3842.	12327.	2	23
302.0	5.2km N. Black Pt.	SON	3842.92	12327.63	2	125
303.0	6.0km N. Black Pt.	SON	3843.27	12328.21	2	17
304.0	6.2km N. Black Pt.	SON	3843.30	12328.27	2	47
305.0	6.7km N. Black Pt.	SON	3843.46	12328.64	2	53
306.0	7.1km N. Black Pt.	SON	3843.58	12328.92	2	1
307.0	7.3km N. Black Pt.	SON	3843.46	12329.22	2	164
308.0	7.4km N. Black Pt.	SON	3843.71	12329.02	2	74
309.0	7.7km N. Black Pt.	SON	3843.74	12329.09	1	45
310.0	1.3km S. Del Mar Pt.	SON	3844.25	12329.90	2	3
310.1	?km S. Del Mar Landing	SON	3844.	12330.	3	1
311.0	Del Mar Pt.	SON	3844.39	12330.93	1	20
312.0	1.3km N. Del Mar Pt.	SON	3844.39	12330.93	1	21
312.1	Del Mar Pt. Area	SON	38 .	12 .	1	27
313.0	Gualala Pt.	SON	3845.12	12331.60	1	79
313.1	N of Gualala Point	SON	3845.	12331.	2	9
314.0	Robinson Reef	MEN	3846.04	12332.74	2	4
315.0	Bourns Rock	MEN	3846.63	12333.49	2	70
315.1	?km N. Bourns Rk.	MEN	3836.	12333.	1	4
315.2	Bourns Landing	MEN	3846.74	12333.21	2	9
315.6	Collins Landing	MEN	3833.76	12346.92	2	21
316.0	Fish Rocks	MEN	3847.86	12335.44	5	35
316.1	Onshore Near Fish Rocks	MEN	3848.34	12336.36	2	3
317.0	Havens Neck-.3km N.Inside Cove	MEN	3848.62	12335.87	2	13
317.1	Vicinity Havens Neck	MEN	3849.	12336.	2	3
318.0	1.2km N. Havens Neck	MEN	3849.08	12336.43	2	32
318.1	Scholl Rock	MEN	3849.	12336.	2	25
319.0	0.6km S. Steen's Landing	MEN	3849.43	12336.74	2	7
319.1	?km N. Steens Landing	MEN	3849.	12336.	3	4
320.0	Morrison Gulch	MEN	3850.38	12337.99	3	69
321.0	Iverson's Landing (S. side)	MEN	3850.60	12338.51	2	32
322.0	Iverson's Landing (N. side)	MEN	3850.72	12338.66	2	0

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	MAX
323.0	Saunders Reef Area (inside)	MEN	3852.30	12339.80	2	28
324.0	0.8km N. Galloway Creek	MEN	3853.18	12341.14	1	53
324.1	1.2 Km S. Arena Cove	MEN	3854.	12342.	2	2
324.5	S. Arena Cove	MEN	3853.20	12340.90	1	9
325.0	0.8km S. Arena Cove	MEN	3854.24	12342.40	1	34
325.1	?km. S. Pt. Arena	MEN	3854.24	12342.40	1	74
325.2	Sea Lion Rocks	MEN	3856.61	12344.09	1	15
325.7	0.25 S Point Arena	MEN	3857.09	12344.65	1	14
326.0	Pt. Arena	MEN	3857.36	12343.73	2	145
327.0	0.4km N. Mallo Pass Cr.	MEN	3901.98	12341.41	1	48
327.1	?km N. Mallo Pass Cr.	MEN	3901.98	12341.77	2	57
328.0	0.9km N. Mallo Pass Cr.	MEN	3902.32	12341.97	2	49
329.0	1.0km N. Mallo Pass Cr.	MEN	3902.91	12342.60	5	83
329.1	Bridgeport Landing	MEN	3902.93	12341.75	2	2
329.5	N. Bridgeport Landing	MEN	3904.10	12342.20	2	1
330.0	0.6km S. S. Elk Cr.	MEN	3905.75	12342.84	2	42
331.0	Elk Creek	MEN	3906.	12342.	2	1
331.1	Big Rock	MEN	3806.42	12342.99	2	11
332.0	Cuffey's Pt.	MEN	3904.44	12344.49	2	176
332.1	N. Cuffey's Pt.	MEN	3909.58	12344.43	3	14
332.5	Taylor Rock	MEN	3909.60	12344.35	2	17
333.0	Devil's Basin	MEN	3910.09	12344.87	2	60
334.0	0.3km S. Saddle Pt.	MEN	3910.39	12345.17	2	73
335.0	0.2km S. Saddle Pt.	MEN	3910.53	12345.06	2	36
335.4	Vic. Arch of the Navarro	MEN	3911.	12346.	2	5
335.2	N of Saddle Point	MEN	3910.84	12345.36	3	1
335.8	0.5 Mi N. Navarro Point	MEN	4110.09	12311.45	2	25
336.0	0.4km S. Salmon Pt.	MEN	3911.64	12346.23	2	23
336.1	Albion Head	MEN	3914.	12346.	2	11
336.2	Albion Head	MEN	3914.	12346.	2	10
336.05	3km N. Whitesboro Cove	MEN	3914.	12346.	3	1
337.0	1.8km N. Albion Head	MEN	3914.65	12347.02	2	37
337.1	?km N. Albion Head	MEN	3914.	12347.	2	2
338.0	0.2km N. Stillwell Pt.	MEN	3915.12	12347.22	2	74
338.1	Buckhorn Cove	MEN	3915.	12347.	2	1
338.2	Van Damme Beach	MEN	3915.80	12347.80	2	13
339.0	Van Damme S. B.	MEN	3916.18	12347.66	2	38
339.1	Van Damme S.B.	MEN	3916.	12347.	2	17
340.0	0.7km N. Van Damme S.B.	MEN	3916.28	12348.01	3	18
340.05	N. Van Damme Beach	MEN	3916.	12348.	2	1
340.1	N of Van Damme Beach	MEN	3916.	12348.	2	23
341.0	1.5km N. Van Damme S.B.	MEN	3917.27	12348.16	2	98
342.0	Near Goat Isl. Mendocino City	MEN	3918.34	12348.70	2	32

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	MAX
342.1	Goat Island Area	MEN	3918.40	12348.90	3	31
343.0	0.6km N. Goat Island	MEN	3918.67	12348.59	2	34
343.1	?km N. Goat IS.	MEN	3918.	12348.	2	20
344.0	1.2km N. Russian Gulch	MEN	3918.90	12349.12	2	22
344.1	Pt. Cabrillo Light Station	MEN	3920.20	12349.	2	15
345.0	Point Cabrillo	MEN	3921.02	12349.69	2	31
345.05	1.2Km N. Russian Gulch	MEN	3921.65	12349.70	2	13
345.1	Casper Anchorage	MEN	3921.55	12349.76	2	24
345.2	Caspar Anchorage	MEN	3921.70	12349.80	3	25
345.3	Caspar Point	MEN	3921.	12349	3	21
346.0	Casper Anchorage Area	MEN	3921.	12349.	2	41
347.0	S. Mitchell Cr.	MEN	3923.00	12349.40	2	21
348.0	Soldier Pt. Area	MEN	3926.	12349.	2	53
349.0	.7kmN.Soldier Pt.Ft.Bragg Area	MEN	3926.73	12349.42	2	51
349.1	?km N. Pudding Cr.	MEN	3927.16	12348.64	1	16
350.0	1.8km N. Pudding Cr.	MEN	3927.61	12348.56	2	27
351.0	0.8km S. Laguna Pt.	MEN	3928.30	12348.60	2	18
352.0	Laguna Pt.	MEN	3929.28	12348.55	1	183
352.1	N Laguna Point	MEN	3929.83	12347.94	2	39
352.2	?km N. Ten Mile River Bluff	MEN	3933.87	12346.35	2	26
353.0	0.3km N. Kibesillah Rock	MEN	3934.71	12346.93	2	55
354.0	Bruhel Pt.	MEN	3936.27	12347.36	5	46
355.0	Bell Pt.	MEN	3937.67	12347.25	2	20
355.1	?km N. Bell Pt.	MEN	3937.	12347.	2	4
355.5	3.2 km N. Abalone Point	MEN	3941.21	12347.89	2	32
356.0	Cape Vizcaino	MEN	3943.66	12349.81	2	67
356.1	Cape Vizcaino Area	MEN	3943.50	12349.95	5	100
357.0	0.4km N. Cottoneva Cr.	MEN	3944.06	12350.11	2	14
358.0	Williams Pt.	MEN	3945.	12450.	1	25
359.0	0.3km N. Soldier Frank Pt.	MEN	3945.55	12450.54	2	14
359.1	?km N. Sea Lion Rk.	MEN	3945.	12450.	2	1
360.0	0.5km S. Anderson Gulch	MEN	3950.91	12453.45	5	58
361.0	0.3km S. Anderson Gulch	MEN	3951.01	12453.21	5	186
362.0	0.3km N. Anderson Gulch	MEN	3951.16	12453.44	5	239
363.0	Northpoint Cove	MEN	3951.18	12453.79	5	839
364.0	0.6km N. Mistake Pt.	MEN	3951.85	12454.41	5	13
365.0	Jackass Creek Area	MEN	3953.92	12455.74	5	154
366.0	Seal Rock 1.5km S. Bear Harbor	MEN	3953.97	12455.96	2	240
366.1	Seal Rock Area	MEN	39	124	5	142
367.0	Pt. No Pass	MEN	3958.	12459.	2	10
367.1	Point Delgaela	MEN	4000.98	12404.52	2	26
367.2	Point Delgada	H	4001.13	12404.54	2	23
368.0	1.4km N. Pt. Delgada	H	4001.50	12404.45	2	43

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	MAX
368.1	?km. S.E. Miller Flat	H	4006.50	12402.45	2	33
369.0	5.0km N. Big Flat Creek	H	4009.27	12413.41	2	13
369.1	Reynolds Rk.	H	40	124	2	1
370.0	Sea Lion Gulch	H	4014.11	12420.46	2	3
371.0	1.7km S. Punta Gorda	H	4014.20	12420.60	2	25
372.0	1.3km S. Punta Gorda	H	4014.	12421.	2	3
372.1	Mattloe Beach	H	4016.16	12422.44	1	16
373.0	Hair Seal Rock	H	4019.47	12421.32	2	206
373.1	?km N. HAIR SEAL ROCK	H	4020.00	12421.40	2	34
374.0	1.6km N. Hair Seal Rock	H	4019.89	12421.39	2	43
375.0	2.2km N. Hair Seal Rock	H	4020.18	12421.74	1	10
376.0	2.7km N. Hair Seal Rock	H	4020.	12421.74	1	4
377.0	1.7km S. Sugarloaf Rock	H	4025.	12424.	2	4
378.0	0.4km S. Sugarloaf Rock	H	4026.12	12424.56	2	5
378.1	?km S. Sugarloaf Rock	H	4026.	12424.	1	2
379.0	0.2km S. Sugarloaf Rock	H	4026.24	12424.66	2	4
380.0	0.3km S. Sugarloaf Rock	H	4026.48	12424.69	2	15
380.1	Vicinity Cape Mendocino	H	4026.	12424.	2	4
380.2	N Cape Mendocino	H	4026.82	12424.98	2	2
381.0	False Cape	H	4030.12	12423.59	2	73
381.1	Cockrobin Island	H	4030.	12418.	5	441
381.2	?km S. Cockrobin Island	H	40 .	124 .	5	81
381.3	?km. N. False Cape	H	4030.	12423.	2	15
382.0	Eel River Spit	H	4038.14	12418.99	4	1060
383.0	S. Humboldt Bay	H	40 .	124 .	4	830
384.0	Daby Island	H	4048.68	12408.97	4	518
385.0	N. Humboldt Bay	H	4050.30	12406.5o	4	170
386.0	Luffenholtz Cove	H	4102.44	12407.20	2	9
386.1	Vicinity Tepona Pt.	H	4102.	12407.	2	1
387.0	Cap Rock	H	4102.65	12407.51	2	17
388.0	Tower Rock	H	4103.10	12407.80	1	39
389.0	Seal Rock Shoals	H	4103.04	12407.96	2	31
390.0	Jamieson Shoal	H	4103.25	12408.14	2	79
390.1	Vicinity Trinidad Head	H	4103.	12408.	2	14
391.0	Dome Rock	H	4103.39	12408.43	2	43
392.0	Lighthouse Shoals	H	4103.40	12408.63	2	19
393.0	Marine Lab Shoals	H	4103.52	12409.45	2	93
394.0	Flatiron Shoals	H	4103.60	12409.61	2	29
395.0	Myer's Cove	H	4104.29	12409.46	2	42
395.1	N. Meyer's Cove	H			2	1
396.0	Bench Cove	H	4105.36	12409.32	1	23
396.1	Vicinity Bench Cove	H	4105.	12409.	1	16
397.0	Seal Rock	H	4105.90	12409.56	2	12

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	MAX
398.0	Seagull Rock	H	4107.45	12409.72	2	43
398.1	Vicinity Seagull Rock	H			2	6
399.0	Midway Rock	H	4107.48	12409.72	2	69
399.1	Midway Rock at Patrick's Pt.	H	4107.61	12310.20	2	25
400.0	Close Rock	H	4107.51	12409.56	1	67
401.0	Flat Top Rock	H	4107.52	12409.84	2	24
402.0	Little Gibralter	H	4107.58	12409.72	2	15
403.0	Spearhead	H	4107.63	12409.88	1	27
404.0	Palmers Pt.	H	4107.75	12409.84	1	79
405.0	Cannonball Beach	H	4107.88	12409.80	1	30
405.05	Abalone Point	H	4107.50	12410.30	2	3
405.1	Patrick's Point Vic.	H			2	1
406.0	Sharp Pt.	H	4114.18	12406.48	3	55
407.0	Redwood Creek Spits	H	4117.55	12405.34	4	9
407.1	Mussel Point	H	4118.78	12405.85	2	13
408.0	Major Creek	H	4119.74	12405.01	2	10
409.0	Klamath R. Spits	DN	4132.71	12404.75	4	341
410.0	N. Klamath Rock	DN	4133.16	12405.41	2	48
411.0	Saddle Rocks	DN	4133.68	12405.76	2	20
412.0	Klamath Cove	DN	4133.98	12405.86	2	56
413.0	Two Rocks	DN	4134.35	12406.09	2	96
413.1	Midway Point	DN	4140.	1240	2	1
414.0	Scat Beach	DN	4140.23	12408.22	5	516
415.0	Millers Point	DN	4140.35	12408.45	1	100
416.0	Mates Point	DN	4140.97	12408.41	3	61
417.0	Battery Point	DN	4144.81	12412.34	1	3
418.0	Castle Rock	DN	4145.68	12414.55	2	542
419.0	Pt. St. George	DN	4146.00	12415.53	2	3
420.0	Mouth of Smith River	DN	4156.37	12411.82	4	37
421.0	NW Seal Rock	DN	41 .	124 .	2	9
422.0	Farallon Islands	FIs	3742.	123 .	2	84